

# THE IRON AGE

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## Manufacturing Expense Control at Stutz Motor Plant

BY L. A. BARON

FOR several years the Stutz Motor Car Co. of America, Inc., has used a general budget plan. Expenses are divided into different schedules, one of which is "direct manufacturing expenses." Under this arrangement department heads are held responsible for the amount of expenses on each schedule, while the production manager is accountable for all of the operating costs in the entire plant.

The tying in of actual manufacturing expenses with the budget gave us more trouble than all other schedules combined. We found it necessary to dig into history to find the reasons why our expenses were over or under the budgeted amount. Previous to the adoption of our present plan several methods of trying to hold foremen responsible for the expenses of their departments had proved unsuccessful, because each was lacking in the proper scale of measuring expenses as compared with departmental production.

### *Budget, Applied Jan. 1, 1928, to 36 Departments, Pays Dividends —Standard-Time Wage Incentive Plan Employed in Place of Piece Rates*

Our present plan, put into effect Jan. 1, 1928, is administered by the production manager working through the comptroller. In developing the plan it was thought that if foremen were sold on the idea of spending only a certain amount for each item of expense, they would be able to keep costs within a limit set by the management. The main problem was to determine the limit, which should be sufficiently flexible to allow foremen lee-

way to operate their departments to the best advantage of the plant as a whole.

#### **Budget Rates Based on \$100 of Payroll**

Throughout 1926 and 1927 our cost department kept accurate individual expense accounts with each manufacturing department. We had a manufacturing expense ledger divided into departments and under each department was a separate account for each expense of that department.

**L.** A. BARON, author of this article, is comptroller of the Stutz Motor Car Co. of America, Inc., Indianapolis, a position to which he was appointed in April, 1928, after having served as budget comptroller since June, 1927. He has been identified with the automobile industry for 15 years, first in the employ of the Searchlight Gas Co., which supplied acetylene gas for automobile lighting purposes, and then, after serving in the United States Army during the war as first lieutenant in field artillery and aviation, with the Tymann Re-Manufacturing Motors Co. as auditor. Later he was associated with the Marmon Motor Car Co. as a cost accountant and in December, 1925, was made director in charge of the cost, timekeeping and pay roll department of the Stutz company. Mr. Baron is the present secretary of the Indianapolis chapter of the National Association of Cost Accountants.



UNIT OF BUDGET BASIS  
Per \$100.00 of payroll  
FOR WK ENDING April 18, 1928

STUTZ MOTOR CO. OF AMERICA, INC.  
**Weekly Budget Performance**  
CONTROLLABLE MFG. EXPENSES  
FOR DEPT. Machine Shop NO. 12

MR. John Doe

SYMBOL	DESCRIPTION	WEEKLY BUDGET BASIS		PERFORMANCE FOR WEEK			PERFORMANCE FOR MONTH		
		UNITS THIS WEEK	RATE	BUDGET	ACTUAL	SAVINGS OR LOSS	BUDGET	ACTUAL	SAVINGS OR LOSS
230	RE OPERATIONS ACCOUNT MTL SH'T G'S		.06	09	-0-	29	1 56	1 03	53
231	SALVAGE EXPENSE		.71	20 53	16 02	4 51	77 16	67 71	9 45
232	MATERIAL LOSSES		2.59	74 90	80 39	X 5 49	281 48	158 16	123 32
233	UNCONTROLLABLE LABOR LOSSES		2.21	63 91	160 67	X 96 76	240 18	209 22	31 86
234	SALVAGING VENDOR DEFECTS		.02	58	-0-	58	2 17	-0-	2 17
235	IDLE TIME		.11	3 18	3 18		11 95	-0-	1 95
236	DAY RATE GUARANTY		.12	3 47	13 02	X 9 55	13 04	23 03	X 9 99
250	WASTE AND WIPING RAGS		.08	2 31	2 25	06	8 69	6 35	2 34
251	OILS AND GREASES	78.92	.40	11 67	41 44	X 29 87	43 47	102 24	X 58 77
252	GASOLINE AND KEROSENE		.19	15 49	6 24	75	28 14	17 34	10 80
253	PERISHABLE TOOLS AND ABRASIVES		5.44	157 32	165 93	X 8 61	591 21	576 16	15 05
254	ELECTRICAL SUPPLIES		.08	2 31	1 45	86	8 69	7 23	1 46
255	GENERAL SHOP SUPPLIES		.67	19 38	30 95	X 11 57	72 84	74 13	X 1 29
219	Dept. Stock Handling		.46	13 30	-0-	13 30	49 99	4 50	45 49
222	Oilers		.34	9 83	12 00	X 2 17	36 94	48 75	X 11 81
223	Sweepers and Janitors		1.91	55 24	37 59	17 65	207 57	146 52	61 05
224	Tool Grinding		2.21	63 91	67 25	X 3 34	240 18	264 92	X 24 74
225	Lay Out Work		.04	1 16	-0-	1 16	4 35	2 80	1 35
226	Set Up Time		.07	2 02	-0-	2 02	7 60	2 55	5 05
203	Foremen & Assistants		Per Wk 45.00	45 00	41 63	3 37	150 00	164 95	15 05
% OF EXP. SAVED OR LOST X 2.12 10.87		STAND-ING	17	18	TOTAL CONTROLLABLE EXPENSES				
				555 70	676 83	X 121 13	TOTAL SAVINGS OR LOSS FOR YEAR TO DATE		
MAINT. MCHY. AND PROCESSING EQUIPMENT									
MAINT. STOCK HANDLING AND ASSEM. EQUIP.									
MAINT. DIES, JIGS AND FIXTURES									
L. L. Barn				TOTAL MAINT. EXPENSES					
BUDGET CONTROLLER									

**THE "Weekly Budget Performance" Report Enables Each Foreman to Correct Abnormal Expense Conditions Promptly.** The budget rates on the report shown, which is only representative, are based on \$100 of payroll. Savings are typewritten in black and losses (marked x in the above report) are recorded in red

From these records we were able to compare the expenses of each department by months and by quarters. The ratio of expense to payroll was determined by departments and by expense of the department. This study gave us our scale, or flexible amount, which was reduced to rates measured by \$100 of department payroll. In some departments we discovered that a comparison of expense to payroll was not the best unit of measure, and in those particular cases we were compelled to use other units as a gage for expenses.

When we made the comparison of expenses to total payroll, we also made a comparison of expenses to productive labor and to the units produced in each department. For the initial rates we took that yearly quarter which showed the best performance, and it so happened that the quarter ended Sept. 30, 1927, gave the smallest ratio of expense to payroll for the entire plant for the period from Jan. 1, 1926, to Sept. 30, 1927.

Having determined the ratio of expenses to payroll, or to other units of measure, for each department, we decided that the next step was to sell the foremen on the rates and on the budget plan as a whole. The writer personally talked with each foreman and explained to him how the budget would be administered, and how the management had arrived at the expenses which would be allowed his department. The majority of the foremen regarded the plan as a good one and recognized in the proposed scheme a possible means of measuring their own efficiency.

As a means of stimulating the foremen's interest in the budget, the management appropriated \$100 a month to be awarded as prizes for budget performance. To the fore-

man saving the greatest percentage of possible expenses was to be given a first prize of \$25, while second, third, fourth and fifth prizes of \$20, \$15, \$10 and \$5 respectively were offered. In addition, the foreman rendering the greatest service to the company during the month, regardless of his budget performance, was to receive a general prize of \$25.

The entire plan, as finally prepared, was put before the foremen at a special budget meeting. A detailed explanation was given and examples were worked out on a blackboard. When a vote was taken, the foremen unanimously expressed a desire to put the plan into effect and to abide by the rulings of a budget committee consisting of the production manager, assistant production manager and comptroller. This committee was empowered to revise rates to comply with existing conditions or with changes in manufacturing procedure, and to propose names for the special monthly prize of \$25. Every foreman responsible for the administration of factory departments was formally notified of the outcome of the meeting, was given copies of the rates of expenses for his department and of the rules under which prizes would be awarded.

Rates adopted and put into effect Jan. 1, 1928, were carried through January and February with few changes. The surprising thing was that the foreman who received first prize for saving the greatest percentage of expenses in January was fifth in February. Furthermore, many other changes occurred in the standings for the first two months. For the benefit of those departments which were tail-enders both months and which no doubt were working under the handicap of inadequate rates, we decided that, commencing



March 1, all rates would be revised, the performance for January and February being taken as a basis. As a consequence, the results in March showed considerable change from the two previous months.

Weekly Reports Permit Foremen to Correct Conditions Promptly

To enable foremen to correct conditions in their departments as soon as possible the management puts into their hands a weekly report on their performance. This report, the form of which may be noted from the accompanying illustration, goes to the foreman within ten days after the close of the pay period. This "weekly budget performance" sheet contains the budget for the week, the actual expenses, and the savings or losses, with the same information cumulative for the month. The details of the department expenses are compiled and a condensed report placed before the general manager and the production manager each week. On both departmental reports and the condensed report the budget and the savings are inserted in black and all losses in red.

When the weekly reports are sent out by the management, a general letter covering the performance for the week is dispatched to all foremen. The letter gives the standing of each department for the month to date and warns all foremen to bear down on all expenses which are showing up in red on the condensed report. In fact, the foreman of any department having a net red figure for the month is asked to report to the comptroller and explain the reasons for his failure to attain a better record. These explanations, gathered each week, are written up in a general report by the comptroller, who submits it to the management with the monthly operating statements. This method eliminates the necessity of digging into past history at a later date to account for the various figures.

The plan just outlined has produced valuable results. In the best quarter of 1927, that ended Sept. 30, manufacturing expenses were 63.11 per cent of the total factory payroll, whereas in the quarter ended March 31, 1928, these expenses dropped to 51.5 per cent, a saving of 11.61 per cent thus having been effected. We estimate that the experiment in controlling manufacturing expenses has paid about

THE Budget Committee, consisting of the Comptroller, Production Manager and His Assistant, is Empowered to Revise Budget Rates to Comply with Changes in Production Procedure and Other Special Conditions. The committee also proposes names for the special monthly prize of \$25

STUTZ

March 10, 1928.

Foreman Responsible John Doe

Dept. No. and Name #12 Machine Shop

Pursuant to agreement as of this date we are submitting herewith revised budget rates effective as of March 1, 1928. These new rates are based on your actual expense for January and February.

Dept. Pay Roll for Jan. \$ 12,514.96

" " " " Feb. 19,080.52

Total for two months 22,595.48

L. A. Baron  
Budget Controller

Symbol	Description	Total Exp. Jan. & Feb.	Rate March 1st.
230	Re-Operations Acct. Mtl. Shortage	2.35	.01
231	Salvage Expense	161.29	.71
232	Material Losses	584.59	2.59
233	Uncontrollable Labor Losses	498.02	2.21
234	Salvaging Vendor Defects	4.00	.02
235	Idle Time	23.85	.11
236	Day Rate Guaranty (Not Revised)	62.28	.12
250	Waste & Rags	18.83	.08
251	Oils & Greases	91.36	.40
252	Gasoline & Kerosene	42.72	.19
253	Perishable Tools & Abrasives	1228.69	5.44
254	Electrical Supplies	18152	.08
255	General shop Supplies	151.07	.67
203	Foremen & Assistants	339.23	45.00 per wk.
219	Departmental Stock Handling (Feb.)	4.73	.46
222	Oilers	76.13	.34
223	Sweepers and Janitors	432.00	1.91
224	Tool Grinding	499.62	2.21
225	Lay Out Work	8.09	.04
226	Set up time	16.90	.07

No.	DETAIL OF ELEMENTS COVERED DESCRIPTION
1.	Operator picks up (3) Crankcases from floor (1) each time, place same in fixture on table of machine, tighten all bolts and clamps, advance work to cutters -- start feed.
2.	Rough and finish mill, lugs, top and bottom face, and bearing locks to size. Note: On Sub-Operation #2, Operator finishes clamping other (2) crankcases on table, removes (2) finished parts, place on floor.
3.	Operator throws out feed, and removes other part, place on floor with air hoist, back up table to load.

STUTZ MOTOR CAR CO. OF AMERICA STANDARD TIME ALLOWANCE										FORM 348	
PART NAME		Cylinder block & Crankcase						PART NO.		20475	
DESCRIPTION OF OPERATION		Mill Lugs & Bearing Locks to Size 1/4"x4-5/8"						OPER. NO.		20-141	
		Mill Top & Bottom Face to Size 16-1/4" Over						DATE EFFECT		5-25-28	
		All Length						DEPT.		12	
OBSERVED BY		H. Holman				DATE OF OBSERVATION		5-25-28			
REASON FOR STUDY		Change in Fixture to Facilitate Production									
SUPERSEDES STUDY AS OF		4-28-28									
COPIES SENT TO		THIS SPACE FOR USE OF COST AND PAY ROLL DEPT.				COMPUTATION OF STD. TIME				RES.	MIN.
PRODUCTION MGR. COST DEPT.		USAGE				TOTAL AVERAGE TIME PER OPERATION				67	00
PAY ROLL DEPT. CHIEF TIME KPR.		<i>One on all models</i>				CONTINGENCY TIME PER OPERATION FOR					
FOREMAN OF DEPT.						Changing Cutters 20%				13	00
TIME KPR. FOR DEPT. NO.		STANDARD COST PER CAR				TOTAL OF TIME STUDY TIME				80	00
		STD. TIME   HR. RATE   COST EA.   USAGE   COST PER CAR				PLUS 25% PREMIUM TIME				20	00
		$100" \times .60 = 100 \times 1 = 100$				TOTAL STANDARD TIME ALLOWED				100	00
STANDARD COST DATA											
CODE NOS.		FORMER PRICE		AMT. + OR -		DATE		BY			
26-153		1.07		-.07		5-25-28		J.E.			
PERSONNEL DATA										EQUIPMENT AND MATERIAL	
OBSERVED BY		H. Holman				TYPE OF MACHINE		Ingersoll Miller			
OPERATOR'S NAME		F. Jones				RATE PER HR.		.60			
OPERATOR'S NO.		12-120				MACHINE NO.		154			
		MALE Male				SPINDLES		7			
		FEMALE				SPECIAL TOOLS OR FIXTURES		1 - #8-2969			
STANDARD GANG PERSONNEL										Fixture to Hold (2) Crankcases	
NO. OF OPERS		MALE OR FEMALE		@ HR. RATE		NO. OF OPERS		MALE OR FEMALE		@ HR. RATE	
12-120		Male		.60							
LOCATION OF WORK										On Floor by Machine	
KIND OF MATERIAL										Cast Iron	
SOURCE OF SUPPLY										Delivered by Dept. Trucker	
STANDARD HOUR RATE FOR OPERATOR OR GANG										.60	
STANDARD PRODUCTION FOR 8-HOUR DAY										6.75 pcs.	
DETAIL OF FEEDS AND SPEEDS USED											
ELEMENT NO.	SPINDLE R.P.M.	DIAM. OF WORK	SURFACE FEET	FEED PER REV.	FEED PER MIN.	DEPTH	CUTS	LENGTH	ACCURACY REQ.	TOOLS USED	
2	22	11"	63'-0"	.119	2.625	3/16"	12'-0"	.005	2-11"x1-3/4" Cutters		
"	29	9"	68'-0"	.090	"	"	"	"	2-9"x2" Cutters		
"	22	10"	57'-6"	.119	"	"	"	"	1-10"x2" Cutter		
"	"	11"	63'-0"	"	"	"	"	"	1-11"x2" "		
"	16	18"	75'-0"	.170	"	"	"	"	1-18"x2" "		
"	59	4-5/8"	72'-0"	.044	"	"	"	.0005	1-4-5/8"x1-1/2" "		
										#1 Fixture #8-2969	
TIME OBSERVATION AND RATE ACCEPTED BY				TOOLS AND EQUIPMENT APPROVED BY TOOL SUPERVISOR				METHODS APPROVED BY			
DEPT. FOREMAN John Doe				W.E.H.				PROD. MGR. W.K.S. L.A. Baron			
GROUP LEADER A. Brown								ASST. PROD. MGR.			
DATE 5-25-28				DATE 5/25/28				DATE 5/25/28			
								DATE 5/28/28			

EVERY Operation in Each Department Is Time Studied and the Result Transferred to "Standard Time Allowance" Sheets of the Form Shown Above. Total time-study time is made up of the actual operating time plus contingency time. To this is added 25 per cent for bonus and the total of the two is the "standard time." If with a standard time of 100 min. and time-study of 80 min., the job is done in 80 min. the operator is entitled to a bonus of 25 per cent

ON the Reverse Side of the "Standard Time Allowance" Sheets Is Recorded Detail Elements of the Particular Operation as Shown at Top of Page



65 times the investment in prizes of \$100 a month. It has required less than the full time of one clerk to keep the records.

By this method of budgeting we are controlling the following list of manufacturing expenses in 36 factory departments:

**Labor and Material Losses:** Reoperations on account material shortage, salvage expense, material losses, uncontrollable labor losses, salvaging vendor defects, idle time, day rate guaranty.

**Shop Supplies:** Waste and wiping rags, oils and greases, gasoline and kerosene, perishable tools and abrasives, electrical supplies, general shop supplies.

**Indirect Labor:** Foremen and assistants, production control clerical, time study, tool design, watchmen and elevator men, shop clerical, process inspection, receiving inspection, final inspection, toolroom attendants, storeroom attendants, receiving room labor, department stock handling, car loading labor, firemen, oilers, sweepers and janitors, tool grinding and sharpening, layout work, set-up time, time-keeping, cost and payroll, payroll variations.

**Other Indirect:** Athletic and welfare, and other miscellaneous expense.

In connection with our budget system, we are using a productive labor plan, the basis of which is standard time with a bonus for performance in less than standard time. Every operation in each department is time studied and to the time study is added a reasonable allowance for stock handling, tooling, etc., this allowance being also based on a time study observation. The allowance and the actual time added together constitute what we call "time-study time," as shown on the "Standard Time Allowance" form reproduced herewith. To the time-study time is added 25 per cent for bonus, the total of the two making up "standard time."

Each operation bears a standard hourly rate, which is the prevailing rate paid in this territory for the particular class of work being done. Standard time multiplied by the standard hourly rate gives us our standard cost.

Performance is paid for on the following basis: All jobs completed between standard time and time-study time are paid for at the standard cost. Worked out on a percentage basis, this would figure out in the following manner: If the standard time is 100 min., time-study time would be 80 min. When the job is done in 80 min., there is a saving of 20 per cent of the standard time, which entitles the operator to a bonus of 25 per cent.

All operations completed in less than time-study time are paid for on the following basis: Actual time plus 25 per cent of the actual time plus 50 per cent of the time saved between the actual time and the time-study time. For example, an operator saving 30 per cent of standard time would be paid 132.16 per cent of the standard hourly rate for the job. When the time to complete an operation is more than the standard time, the operator is paid the standard hourly rate for the time taken to do the work.

To facilitate payroll accounting we have worked out a step-rate schedule based on savings of 2.5 per cent, each saving of that amount taking a higher rate of pay. These jumps are always an incentive for operators to better past performance.

#### Cost Reductions Credited Against Department Expense

A 30 per cent saving in standard time lessens the cost of the product 7.5 per cent, the reduced cost reverting to the department as a credit against department expenses. A 10 per cent increase in time over standard time increases the cost of the product 10 per cent. This increased cost is charged to the department as an expense. With the foreman receiving a credit for savings and being charged up on his budget with losses, we have his constant cooperation in seeing that all operators make as high a daily rate as possible.

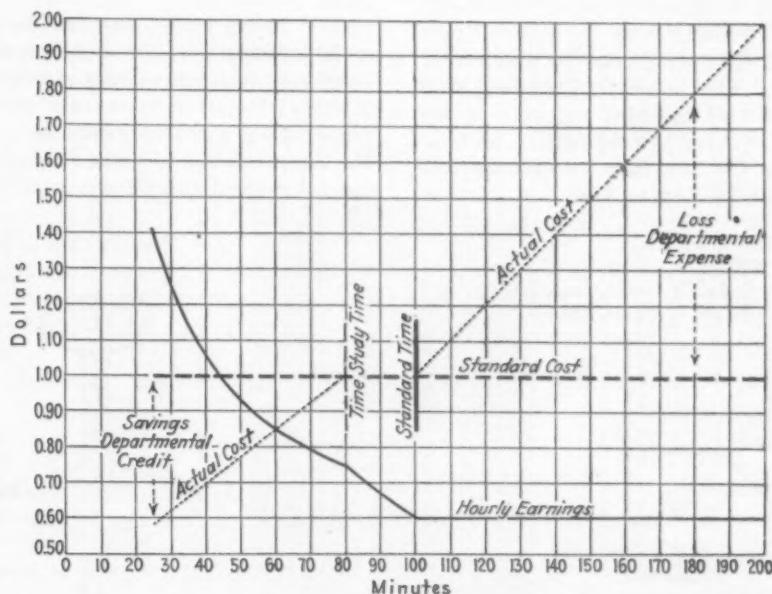
With this article is printed a chart showing the time-study time, actual cost and standard cost based on a standard time of 100 min. and a standard hourly rate of 60c. This plan of pay is applied to individual workers, two-man teams and gang work. The following rules govern operations paid for on a gang basis:

1. On all assembly lines.
2. On all progressive lines of operation.
3. Where the task requires the labor of more than one operator.

4. Where labor of more than one operator of a department is habitually employed to complete all department operations on a part or unit.

5. Where like workers or machines are grouped together for the purpose of performing like operations on different parts or units.

This method is now being introduced and is supplanting individual and group piece work. We are selling the idea to the employees on the basis of earnings per hour instead of price per piece. We hire our employees at so much per hour and we find from past experience that new employees coming into the shop are interested primarily in their possible hourly earnings, not in price per job. In the departments where it has been installed it is meeting with success and we are receiving the cooperation of both the operators and the foremen.



**CHART** Showing the Time-Study Time, Actual Cost and Standard Cost Based on a Standard Time of 100 Min. for the Operation and a Standard Hourly Rate of 60c. This standard-time wage incentive plan applied to individual workers, two-man teams, and gang work

#### Stainless Steel Chain to Strengthen London Cathedral

A stainless steel chain will girdle the dome of St. Paul's Cathedral, London, at the base of the famous whispering gallery, as a part of the strengthening work now in progress. The chain, which is now practically completed at Brown Bayley's steel works, Sheffield, England, has a length of 450 ft. and weighs over 33 tons.

Each link of the chain is composed of three or four solid bars 14 ft. 8 in. long. Originally a much bulkier chain had been designed by the contractors, but the steel plant was able to economize in bulk and weight.

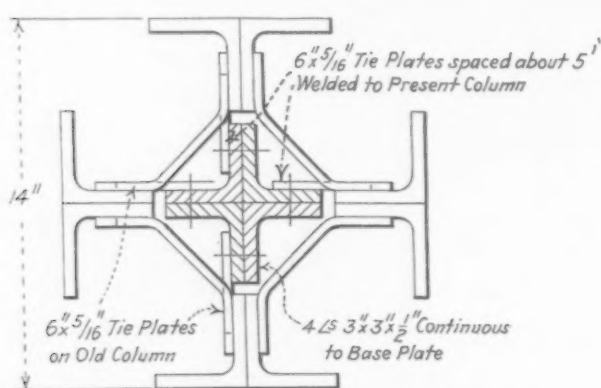
# Steel Building Enlarged By Welder

Floor Area and Height Increased By Welding Reinforcements and Connecting Beams to Old Structure—  
Minimum Damage to Plaster and Interior Trim

**A**N interesting example of how structural welding may be used to advantage when enlarging or remodeling an old steel-frame building may be drawn from work on the Rose Building, Cleveland, done by the Forest City Structural Steel Co. This six-story building was erected in 1898, and the owners intended not only to increase its ground area, but to carry the old portion up four more floors, notwithstanding the fact that the existing columns were not designed for this extra load. A further

a four-story H-column and the latter attached to it by edge welds.

The beams which carried the roof of the low section of the building were not of sufficient size to carry floor loads. To give them the necessary strength without disturbing the ceiling of the sixth floor, track rails were welded to the top flange of the existing beams as shown in one of the cuts. The flange of the rail was trimmed to 3½ in. wide, so the upper flange of the I-beam would give the necessary sup-



**Old Column Reinforced by Dropping Angle-Iron Cross Down Open Center and Welding in Place with Tie Plates**

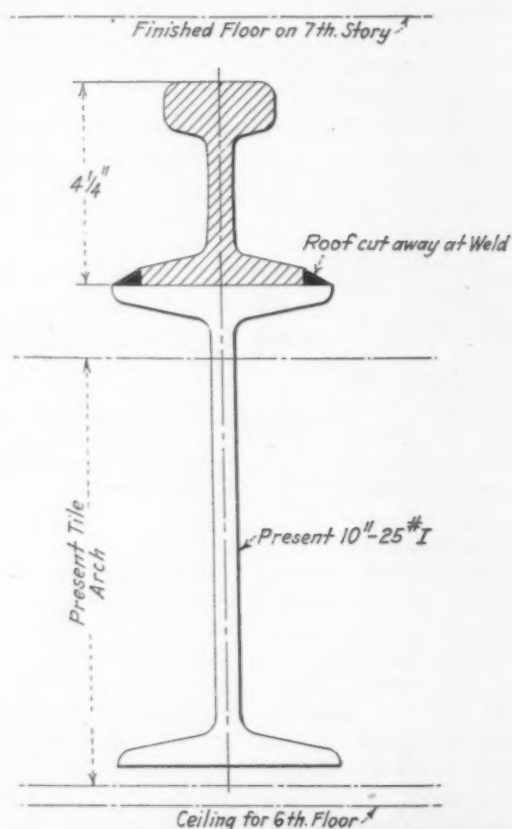
complication rested in the fact that the drawings showing the steel details had been lost.

It would have cost much money to uncover enough steel to enable joints between the existing steel and the new beams to be detailed and riveted in the conventional manner. Furthermore, tenants (mostly doctors and dentists) would have been disturbed or even temporarily dispossessed. This situation was met by uncovering only a small area of steel at each joint, measuring the connection to the new frame work, cutting a member in the field with an oxy-acetylene blowpipe, and then welding this connecting member to the exposed face of the old steel. Lincoln Stable-arc machines were used for this field welding. Most of these connections were made unknown to the tenants behind the curtain wall.

## Reinforcement Placed Inside Columns

Reinforcement of the old columns was also done with a minimum of disturbance to plaster and interior finish. They are of the Gray type, made up of eight tees held together by straps riveted to the legs of the tees; thus the columns had an open center. To stiffen them and give them greater load bearing capacity, sections in the shape of a cross made up of four angles were inserted down this hollow center. The new steel was then joined to the old at five-foot intervals by plates welded to the legs of the angles and to the legs of the old tees.

A cross section of the strengthened section is shown in an accompanying drawing. To extend this column upward, it was cut off square, and a 1½ in. cap plate welded to the supporting steel. This cap plate served as a base plate for



**Roof Beams Strengthened Without Disturbing Ceiling Below by Welding Rail to Top Flange**

port for the weld metal, and enable the workman to weld in the "down" position.

Welded steel bar joists are used in the new addition. These are held in position by welding the ends of each joist to the beams. The joists are tied transversely by welding a half-inch round rod to their bottom chords.

Operators were required at intervals to weld samples which were tested to satisfy requirements imposed by the local building commission.

## Visual Inspection of Each Weld Insured Uniformly Good Work

By such methods the owners were enabled to receive full rentals from the old part of the building, and the tenants were discommoded to the minimum extent—either in having the interior trim of their rooms wrecked, or in being disturbed by noisy rivetting operations.



# Mass Production Limited by Demand

Output en Masse Circumscribed by Restricted Markets

—Relatively Few Businesses Lend Themselves to Mass Manufacture

**"T**HE idea that mass production is an unfailing key to wealth is a mistaken one," said Charles Piez, chairman Link-Belt Company, Chicago, when interviewed by a staff representative of THE IRON AGE. "The fact is overlooked that relatively few businesses lend themselves to mass production. A large proportion of the work of the Link-Belt Company, for example, is of a jobbing character, i.e., the building of equipment to meet special specifications.

"Even in industries where mass production methods can be employed, output is definitely limited by demand. To be sure, in some fields markets can be further expanded without great expense. It is no longer necessary to create a demand for automobiles. Every normal person wants to own a motor car, and it is only necessary to build one that he can afford to buy.

## Lower Costs Do Not Guarantee Larger Sales

"But, because the automotive industry can cut costs and expand its market by producing en masse, it does not follow that other manufacturing lines can increase sales following a reduction in costs. In the materials-handling field, for instance, it would be absurd to assume that a price cut of a few hundred dollars would enlarge the demand for steam shovels or conveyors. Even in long established mass production industries, such as flour milling and beef packing, there are distinct limits to market expansion. As a matter of fact, the per capita consumption of flour and beef is only about four-fifths as large as before the war. The habits of the public have changed; mixed diets, including more fruit and vegetables, have replaced the former standard fare of roast beef, potatoes and bread. The gain in demand that would follow further cost reduction in milling and packing would doubtless be insignificant.

"Bituminous coal mining is another outstanding example of an industry that has a restricted market. To a large extent building, together with the industries dependent on it, is confronted with the same condition. The replacement of small buildings by skyscrapers in the Chicago Loop district is definitely limited by the area available. Granting that such construction will continue outside the present Chicago business district, it is doubtful whether the rate of replacement will be so rapid, with the advantages of central location lacking.

"The fact that output cannot be increased ad libitum is often overlooked in mass production industries. The economies from large-scale output are a constant temptation to

increase production first and worry about sales afterward. Efforts to sell goods in excess of consumption have added very considerably to the costs of marketing. In most industries, including those outside of the mass production field, distribution has become a major problem. In our own

company we have been conscious of a decided increase in the cost of selling in the past few years.

"Selling programs of the future must encompass a more scientific study of markets. Merchandising must be made more effective. Futile efforts to overcome the insurmountable must give way to the more intelligent cultivation of markets that can be captured. If building were declining, it would be foolish for a maker of shovels to try to increase his sales by an extensive advertising campaign. No advertising expenditures that he could make would succeed in reversing an economic trend.

## Ineffective Merchandising Sometimes Handicaps a Whole Industry

"Lack of effective merchandising frequently causes a manufacturer or a whole industry to lose ground. The steel industry was among the first to develop mass production, but it now finds its market limited to a greater extent, in all probability, than would have been the case if its merchandising problem had received the same attention that was given to operating technique. It is now clear that the steel mills permitted the cement industry to outgeneral them in aggressively promoting the use of reinforced concrete.

"The problem of getting products to the ultimate users is not solved by high-pressure selling that merely moves goods from manufacturers' warehouses to secondary hands. Goods must be wanted by the final buyer. Sales departments should make a careful research of markets before, and not after, production programs are inaugurated or plant expansion is undertaken.

## Surplus Capacity Dictates Greater Cooperation

"While market study can be profitably pursued in all lines, the fact remains that most industries have surplus capacity and should control their output accordingly. Our own company could build more than it can sell, but, if it did so, it would be in red figures.

"There is no question that the Government must permit greater cooperation among competitors, particularly in those industries where excessive production not only wipes out profits but threatens their very integrity. Trade associations have done much by distributing information regarding consumption, sales and production. When sales are declin-



*"THE idea that mass production is an unfailing key to wealth is a mistaken one. Relatively few businesses lend themselves to mass production, and even where mass methods can be employed, output is definitely limited by demand."*  
CHARLES PIEZ.

ing there is less temptation to slash prices if a company knows that it is holding its customary share of the total business done. The leavening effect of the trade association has been supplemented by the good work of the Department of Commerce in promoting economies through standardization and simplification.

#### Consolidation Only Alternative to Cooperation

"The only alternative to greater cooperation is consolidation. Mergers are desirable among companies making the same or closely allied goods, especially products sold by the ton. There is little doubt that if one company owned all the steel plants in this country steel could be sold more cheaply. When a great number of varieties of products are made, consolidation is less advantageous. Even in the case of such plants, mergers are sometimes economic. In 1906 three companies having much the same owning interests consolidated into the present Link-Belt Co. This merger benefited both ourselves and our customers. One management replaced three, a single branch office sufficed where two were formerly needed, and advertising expenditures, although double those of any one of the three merged companies, nevertheless fell below the previous combined outlay.

"The attitude of the general public toward mergers and trade associations has changed. It is no longer feared that prices will be raised to an unduly high level. Expansion of business can come only with the improvement of products and further reduction in costs. Extortionate prices would be an invitation to enterprising capitalists and executives to enter the field. Moreover, the stamping out of competition would probably result in Government control, an eventuality that industries seek to avoid. Nor is inter-industry competition to be forgotten. Excessively high prices in certain fields would tend to divert business to other industries.

#### Dominant Group of Stockholders Desirable in Large Company

"Consolidations, in my opinion, are well worthwhile in the automobile industry. In some other fields it is conceivable that mergers might become so large as to be unwieldy. Large companies with ownership widely diffused always run the risk of supplying insufficient incentive for progressive management. American stockholders are singularly apathetic, and there are distinct disadvantages in the impersonal touch of a hired management. I have always believed in the responsibility of stockholders. In a large organization it is desirable to have a group of stockholders dominating the company, such as the DuPont interests in the General Motors Corporation. Where there are no dominant owning interests it is well to encourage the management to acquire a real stake in the form of stock or a percentage of the profits. Profit-sharing is criticised because it tends to foster a driving type of management that fails to build up proper reserves or to keep plant and equipment in up-to-date and good working order. A similar self-interest manifests itself in piece-rate work, but just as the piece-rate method of wage payment calls for closer inspection of the product, so must a profit-sharing management be under closer control of the board of directors.

#### There Is No Fixed Buying Fund

"The problem of production, of course, is intimately connected with the problem of consumption. The development of new products and new uses for products brings about additional employment and greater purchasing power. There is no fixed buying fund. It is wrong to assume that the public has only so much to spend and that the fight is for the buyer's extra dollar. If you can create a new demand, the necessary buying power seems to be there.

"While this is broadly true, it should not lead to a misconception of the significance of the wage problem. The employer's responsibility to his workmen consists in pro-

viding them with steady work, under sanitary conditions, at the best possible wages. But to those who have to meet 52 payrolls a year, in the face of keen competitive conditions, the responsibility is by no means a light one.

#### Rise in Wages Has Been Natural

"In our industry and industries allied with it we have not consciously raised wages to maintain or increase the purchasing power of labor. Wages have had a natural rise. In 1914, when Ford raised wages of common labor to \$5 a day, he did it because he had an unlimited market and needed greatly expanded production. During the war and in the post-war period opportunities for higher wages appeared and, no doubt, did much to improve the relations between management and labor. It became clearer that employers and employees have a common stake in industry and that their fortunes rise and fall together. Management has generally accepted the view that wage reduction should be the last step in any business recession. It has, therefore, concentrated its attention on reducing labor costs through the increased use of labor-saving equipment. Such equipment was not introduced to raise the wage level; rather wages rose first and industry then set out to beat them—not by wage cuts, but indirectly through better methods and improved machinery.

#### Scientific Research of Prime Importance

"Economies in manufacturing have been forced by the high labor market and, naturally, have been prompted also by a desire to expand markets. Such great progress has been achieved in the development of more efficient methods and equipment that manufacturers have come to realize the prime importance of supporting scientific research in an effort to find new short cuts in cost reduction.

"The emphasis on lower costs has been matched by the attention given to financing buying. It is safe to say that the time on instalment payments on automobiles has been doubled in the past few years, thereby enabling many thousands of people with smaller incomes to purchase cars. Consumer purchases of mass production goods may be adversely affected by the decline in our stock of gold and recent advances in interest rates. Human nature must be considered in this connection, however. The check on instalment buying may be like the attempted check on brokers' loans. In other words, obstacles are often ineffective when a man wants something.

"The general effect on business of the outflow of gold cannot be appraised at this time, but it is not an unreasonable assumption that the return of the metal to countries that have long had a deficient supply will bring about a steadier and stabler world money market, to the ultimate benefit of this country."

"Zeolite Water Treatment" is the title of a reprint issued by the Department of Engineering Research, University of Michigan, Ann Arbor. The paper was read before the American Water Works Association. It is devoted to a water treatment system used in the heating plant of the Detroit Edison Co. The conclusion is that the system operates satisfactorily under careful supervision and that it is reasonably safe. The use of phosphoric acid gives less carbon dioxide in the steam and less caustic alkalinity in the boiler. It is believed that this phosphoric acid will eliminate scale in the tubes of the boiler.

"A Little History of Marking Devices" is the title of a 24-page pamphlet of unusual type issued by the Noble & Westbrook Mfg. Co., Hartford, Conn. The booklet illustrates a large number of nationally known trademarks, classifies the types which may be registered and tells how they may be attached to the various articles of consumption. Copies of this booklet may be had undoubtedly on request.



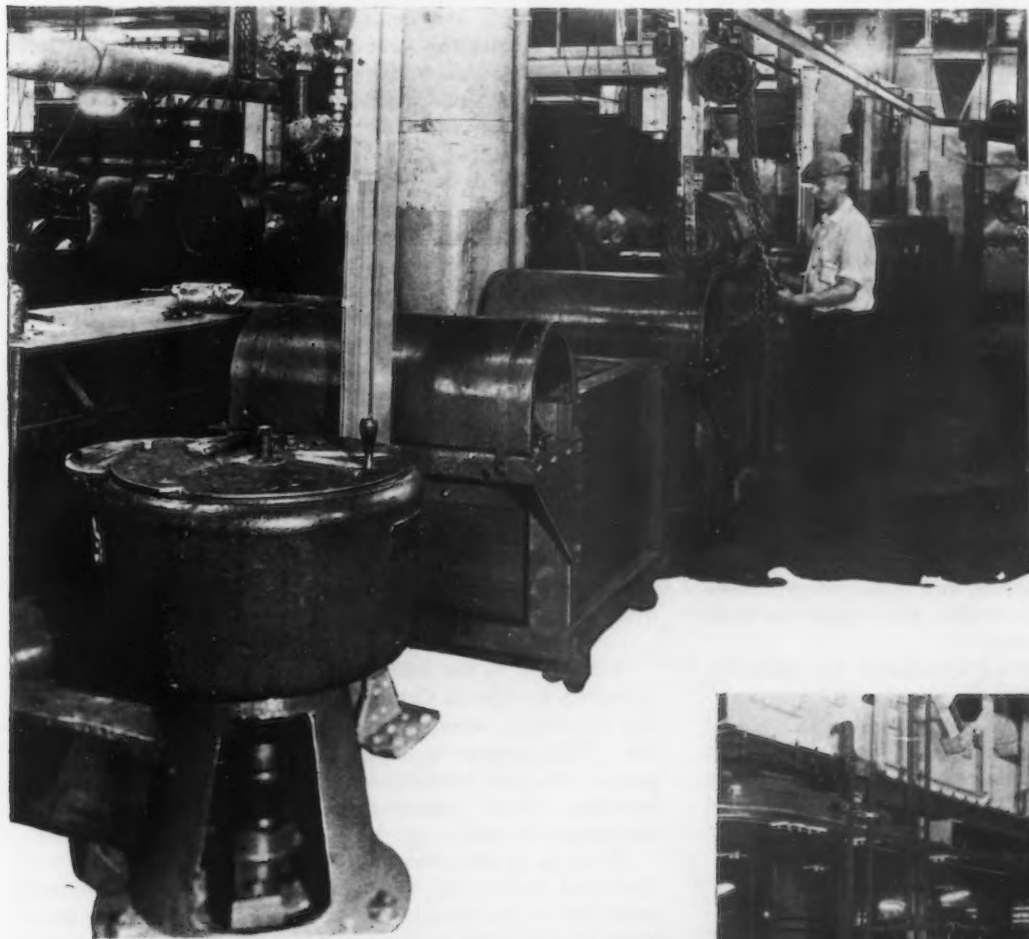
# Automatic Cadmium Plating

After Brake Bands Are Racked and Placed on Hangers,  
Further Passage Through Washing and Plating  
Baths Is Entirely Automatic

BY FAY LEONE FAUROTÉ\*

**D**EMAND for automatic plating has come naturally with mass production of exposed machine parts needing a protective or ornamental covering—especially from the automotive industry. Here beauty of ex-

In the old way of doing things this section of the manufacturing gamut was usually relegated to an outside shed with a dirt, cinder or slat floor. The place was often wet, the ground damp, the air full of unpleasant fumes. The



*At Left — Semi-Automatic Equipment for Plating and Washing Small Parts*

*Below — Revolving Telescope Arms Above Conveyor Lift Hangers from Tank to Tank*

ternal appearance vies with long life of the mechanism in the race for sales supremacy. Stainless steels and protective coatings have been so widely used in other industries that motor car manufacturers have been forced to adopt better and more permanent methods of rust prevention. Most automobile parts subject to oxidation and apt to have their efficiency impaired are now being covered with copper, brass, nickel, chromium or cadmium.

#### Automatic Equipment Makes for Neatness

Among the several interesting machines recently introduced into the Ford Motor Co. shops for manufacturing Model A is a battery of automatic cadmium plating tanks served by a combined automatic mechanism and conveyor. Virtually continuous, this new apparatus eliminates to a large extent the human uncertainties and incidentally the messiness of this operation.

\*Mechanical engineer, New York.



metal parts were laboriously hung on hooks or racks and immersed singly or in groups in the various washing and plating solutions. At the end of the proper time (and that time was apt to vary according to the trustworthiness of the workman) the parts were again laboriously removed, one by one, carried dripping to the next tank, immersed again, pulled out and finally hung on a dripping rack where they remained until they were ready for transfer to the stockroom or to the buffing department. Many times there were not enough parts in any one batch to make it worth while for the foreman to rig up a wooden draining, plating or washing frame. Bent wires and wooden racks, wooden crossbars and grimy tanks combined with a crude switchboard in an entangling maze of wires—such was the old equipment. It was also necessary to truck parts from the machine shop to the polishing, plating and buffing rooms.

How different the modern automatic plating department! True, there still remain some of the old earmarks, but the job is no longer a messy one. No more need it be segregated. No more need the floors be running sewers, the workmen slushing around in rubber boots. Automatic plating tanks and mechanism may be put in or near the process line without greatly interfering with the work going on around it. Like heat treating, it may become part of a straight line of production.

#### Cadmium Plating Requires Four Tanks

The equipment shown has recently been installed in the Fordson plant for cadmium plating Model A brake shoes. It includes four main tanks: 1, the electric cleaning solution; 2, the first water rinse; 3, the cadmium electroplating tank proper; and 4, the hot water cleaning or rinsing tank.

The parts in groups of ten are hung on the suspension frames, which frames in turn are placed on conveyor hangers in pairs. Loading and unloading is done when the hangers are down between the tanks in the left foreground. Passage through the process is thereafter continuous and automatic. To get from the loading position and from tank to tank, a slowly revolving telescopic arm, whose end is guided around a rectangular path, picks the hanger off the supporting conveyor fingers, lifts it straight up, carries it forward in this elevated position, and then lowers it down again on the forward-moving conveyor, whereupon the work is submerged in the next solution.

This unique mechanical device eliminates the necessity for manual handling and makes the dipping a purely mechanical movement, performed in tempo and at a definite speed so that each operation is given just the right amount of time for its adequate performance. The first tank, shown in the left foreground, in which the parts remain suspended 2½ min., contains a cleaning solution of tri-phosphate of sodium, soda ash, caustic soda and a little sodium cyanide.

#### Electric Bus Bars Overhead

When submerged in this bath an electric potential is impressed on the metal parts to facilitate the chemical action. A bus bar will be observed just below the conveyor. Each hanger has a contact brush connected with spring clips, to make good contact with the bus bar during this portion of its travel. Naturally the hangers are attached to the casting at top by insulated bolts, so the passage of current will be from overhead bus, through hangers to work, and thence from work to contacts submerged in the tank.

While the brake shoes are in the cleaning tank the conveyor passes around the end wheel and travels from left to right at the rear. Reaching the second tank (not clearly shown at the rear) the hangers are lifted up automatically over the partition and down again into a wash solution.

This second tank contains circulating water and the rinsing operation requires 1½ min. The third tank, in which the parts remain suspended 21 min., is the main electroplating bath. It is a wide long tank in which the brake shoes remain submerged during the most of the trip from left to right (at the rear) and return. During this time the

brushes on the hangers are in contact with a bus bar, impressing the required potential on the submerged parts. The solution used for cadmium plating is composed of cadmium oxide, sodium cyanide, caustic soda and corn syrup.

The fourth and last tank is a hot water rinse, requiring 1½ min. The whole process consumes a total of 25 min.

This plating machine has a capacity of 3080 pieces an hour. Three men are required to operate it and it is estimated that by its use the labor of fifteen men per day is saved. Direct current at 6 volts is used, 20 amp. per sq. ft. of plating surface being required. A 5000-amp. generator set is located in an adjoining room.

#### Small Parts Handled in Tumbling Barrel

For very small parts which cannot be readily handled on racks a different method is employed. They are loaded into perforated copper buckets; given an "in and out" in a cleaning solution; immersed in hydrochloric acid for two minutes and then emptied into a revolving wooden barrel which, by means of an overhead trolley, is brought over the plating bath, immersed, and revolved for 20 min. in the plating solution. Finally the parts are emptied into a centrifugal dryer, the cadmium solution washed off and live steam is turned on for a 1 min. drying operation, after which they are dumped into containers for conveyance to the stockroom. The cathode placed inside of the barrel comes in contact with the work to be plated as it revolves. The tumbling barrels are made of wood, pierced with ¾-in. holes which allow the flow of the electric current and chemical solution from the anodes outside to the cathodic parts inside. This method is used for plating nuts, bolts and other small articles. It is estimated that this method costs hardly one-tenth of the old method in labor and materials.

In the photograph the centrifugal dryer is shown in the left foreground, while in the middle background a workman is seen preparing to immerse the revolving drum containing the parts into the plating solution. These operations, of course, are not continuous nor fully automatic, but are an adaptation which efficiently plates small parts.

#### Activities of American Engineering Standards Committee

According to the 1928 Year Book of the American Engineering Standards Committee, it costs \$41,500 in salaries and \$20,000 in expenses to conduct the committee's activities. This amount is raised from dues of 29 member organizations and contributions from 340 sustaining memberships. These figures represent a slight growth from the report for 1927.

Work is in progress on 164 projects, of which 54 were instituted during the fiscal year. Some 29 new standards were finally approved in the 12 months, bringing the grand total of American engineering standards to 111. Among those approved last year are a table of preferred numbers (a scientific basis of sizes for series of machines), standards for pipe flanges and fittings, for bolts and rivets, and safety codes for prevention of dust explosions.

Certain changes have been made in the procedure of committees, designed to expedite the work and to secure assent of all the groups concerned in the project under consideration. A change in name is also under contemplation, as noted in THE IRON AGE for July 12, page 84.

Laboratory investigation on the creep of metals at high temperature done during the year past in England at the National Physical Laboratory indicates that an increased chromium percentage (40 instead of 20) proved an advantage for high temperature use; at 800 deg. C. failure occurred mainly by cracking. Of the Ni:Cr:Fe alloys the proportions 25:25:50 have so far given the best results under prolonged loading at 800 deg.



# Wide Ramifications of Shipbuilding

Calls for Materials Made on Nearly All Industries

—Benefits to Come with American Merchant Marine

WITH practically every industry in the United States in line to be benefited, building up of a privately owned first-class American merchant marine comes nearer realization under the recently enacted Jones-White law than at any previous time during the present generation. Already negotiations looking to loans to private operators are being considered, while contracts have been completed for carrying the United States mails.

That the new law means much to American industry is accepted by the highest authorities, who are deeply interested in the restoration of an adequate merchant fleet within the keeping of the requirements of the nation, for carrying on its immense export and import trade. Indicative of this fact are the views expressed to *THE IRON AGE* by H. G. Smith, vice-president Bethlehem Shipbuilding Corporation, Ltd., and also vice-president and treasurer of the National Council of American Shipbuilders. Mr. Smith was one of the prominent witnesses who appeared before the House Committee on Merchant Marine and Fisheries at Washington in connection with hearings on the Jones-White measure.

"The Jones-White merchant marine act is the most constructive piece of merchant marine legislation that has been enacted within my recollection," Mr. Smith told *THE IRON AGE*. "While the act may not accomplish every-

thing necessary to establish a permanent American-owned, American-built merchant marine in the foreign trade, under private ownership, it is nevertheless a very important step in that direction.

## Act to Save Shipyards from Stagnation

"In the first place, the act reasserts a policy backed up by a large majority vote in both houses of Congress, and further supported by a provision for long-term mail contracts for speeds of 10 knots and upward. The provision, together with a liberalization of loans, both as to the amount of the loan and the rate of interest, will make it possible for the private steamship owner to adopt a constructive program for operation, and to provide for the building of new tonnage. That some vessels will be built this year as the outcome of this merchant marine act seems assured, and this assurance is necessary to save the private shipbuilding industry of the United States, which is now at its lowest ebb within the history of modern steel ship construction.

"The Jones-White act is a notification to the world that we propose to carry a reasonable proportion of our world trade in our own vessels, built in American shipyards."

To show the stimulus which American industry will receive from shipbuilding, Mr. Smith cited the break-

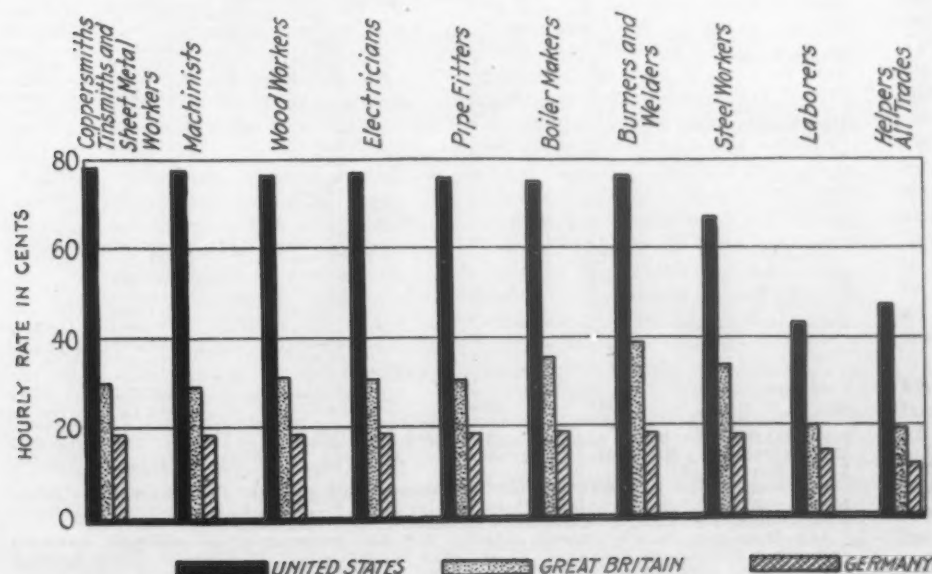
down cost of a 10,000-ton freight steamer as follows:

	Per Cent
Material .....	50.20
Labor .....	39.94
Insurance fees, taxes, and depreciation .....	5.36
Freight .....	4.50

The percentages will be about the same for a motor vessel if the Diesel motors are constructed at the shipyard.

The foregoing percentages show that, for every \$1,000,000 spent in the building of a new vessel, \$502,000 is for materials—ordered from practically every industry in the United States. Analysis of the material distribution of a vessel built at one of the large shipyards shows that practically every State in the Union participates in the material required. Mr. Smith said that the rolled iron and steel in a ship is probably not more than 20 per cent of the total material cost. But, even on such a basis, the iron and steel in a \$1,000,000 ship would reach a value of \$104,000, and, with only a fair activity in shipbuilding, such sums when aggregated would reach substantial proportions. They certainly would mean much to heavy rolled lines, including plates, shapes and bars, as well as other products, and be an important influence in the market.

Other materials would consist of copper, tin, zinc, lead, lumber and allied products; textiles and their products, rubber products, leather,



**C**OMPARATIVE Wage Rates in Three Countries, Showing the Handicap under Which American Shipping Labors in Competition with European Ships Built at Lower Costs. It may be noted particularly that the American laborers are more highly paid than the skilled labor of Great Britain and Germany

electrical products, stone, clay and glass products, all of the elements entering into auxiliary machinery, running through the entire gamut of material down to miscellaneous hardware and food supplies. The machinery requirements would be appreciable, stimulating the machinery trade, as well as iron and steel requirements for their manufacture, and, in turn, lines entirely out of the iron and steel and machinery trade would require this class of equipment in supplying shipbuilding and ship-operating needs.

"The provisions of the bill," said Mr. Smith, "are such that new construction seems certain. This construction will be carried out in American shipyards, and over one-half of the stimulus given to every ship built is a stimulus to nearly every branch of American industry."

#### How Cost of Large Liner Would Be Distributed

Mr. Smith cited an assumed cost of \$15,000,000 for a passenger vessel of a type necessary to supplement the Leviathan, George Washington, and other leading vessels of the United States lines. Only about 39 per cent of the total cost of building such a vessel, it was explained, will be expended within a shipyard; 5.6 per cent for taxes, insurance and depreciation; 4.6 per cent for freight, and the remainder, 50.8 per cent, for material ordered by the shipbuilder from supply people throughout the country.

Taking the manufacture of steel as an example of this distribution, it

was explained that the shipbuilder pays for this steel as a finished material. The steel maker and supplier of raw materials, however, in producing this steel pay about three-quarters of its total cost to labor. Involved in the manufacture of steel is the purchase of ore, limestone, coke, scrap and miscellaneous materials purchased from various parts of the country, and each of these raw materials involves the purchase of other materials and employment of labor.

Also, said Mr. Smith, in the manufacture of any one of the products in any State, a further breakdown into labor and material will occur, with still further requisitions on other States for raw materials used in the manufacture of such product. The transportation of each of these products to the shipyard requires the services of railroads. Ten per cent of the total cost of construction of a vessel goes to the railroads to pay the transportation charges on materials ordered directly by the shipyard or equipment manufactured by independent contractors. Hence, transportation charges of approximately \$1,500,000 would be paid to the railroads in the construction of a vessel of the value of \$15,000,000.

#### Labor Gets Seven-Ninths of Total Cost

Of the total cost of \$15,000,000 for such a vessel, it was explained, the shipbuilder expends 39 per cent for labor in the shipyard, and the steel-maker and the suppliers of raw materials used in making steel about 79 per cent of the total cost of steel for

labor. Railroads expend about 41 per cent of the total amount of the freight bill for labor, and every other item of material involves the payment of a correspondingly large percentage of its cost for labor. An exclusive material charge does not exist, except for the intrinsic value of the ore in the mines, lumber in the forest, products of the field and profits to manufacturers.

"The net result," Mr. Smith said, "is that of the total cost of this \$15,000,000 ship, about 78 per cent goes to American labor, composed of almost every known craft, involving a total labor cost of about \$11,700,000, or 2,340,000 days work, or the employment of 7800 workmen at \$5 a day for one year, or 2600 workmen for three years, which is approximately the time required to build this vessel."

#### Materials Needed to Build a Freighter

The value of material required for a 10,000-ton steam cargo ship and purchased direct by the shipyard was placed at \$736,500, while the freight charges were fixed at \$70,000. Among the items listed and their values were the following: Rolled steel and rivets, \$201,500; sheet steel, \$1,820; sheet brass, \$440; sheet lead, \$200; cast steel, \$23,200; cast iron, \$38,700; cast brass, \$37,400; forgings, \$36,100; steel and iron pipe, \$6,550; brass and copper wire, \$15,800; lead pipe, \$800; valves, \$8,460; pipe fittings, \$4,850; hardware, \$2,200; wire rope, \$5,100; wire and conduit, \$4,100; galvanizing (zinc), \$13,000; generators, \$14,600; boilers, \$113,300; engine room auxiliaries, \$60,130; deck machinery, \$92,000.

## Blast Furnace Capacity Declined in 1927

Loss of 3.4 Per Cent Brought Total to 49,605,720 Gross Tons—588,900 Tons Added This Year

TOTAL annual capacity of blast furnaces in the United States producing coke pig iron decreased 1,773,680 gross tons, or 3.4 per cent during 1927, according to the annual statistical report of the American Iron and Steel Institute. Total theoretical capacity, as of Dec. 31, 1927, stood at 49,605,720 gross tons, but three furnaces then under construction have since been completed, making the total as of Aug. 1, 1928, 50,194,620 gross tons. This figure does not include the capacity of 54 coke furnaces "which have long been idle or are likely to remain long inactive," and is based on the possible output of 300 furnaces. This is an average of 165,352 tons annually and indicates an average daily capacity per furnace of 453 tons.

Greatest losses of capacity were evidenced in Pennsylvania, Ohio and Virginia, the figures having been 1,254,100, 430,600 and 374,000 gross tons respectively. New Jersey and Missouri are each shown with no capacity in the 1927 analysis, but had 300,000 and 90,000 gross tons respec-

tively in the previous year. Large gains were shown in Indiana, Alabama and West Virginia, the figures being

#### ANNUAL CAPACITY OF COMPLETED AND BUILDING BLAST FURNACES BY STATES ON DEC. 31

	(Does Not Include Number of Furnaces)		Charcoal Furnaces)		Annual Capacity (Gross Tons)		Net Change, Tons
	1927	1926	1927	1926	1927	1926	
Massachusetts . . . . .	1	1	175,000	140,000	175,000	140,000	+ 35,000
New York . . . . .	25	26	3,595,800	3,781,000	3,595,800	3,781,000	- 185,200
New Jersey . . . . .	2	3	300,000	300,000	300,000	300,000	—
Pennsylvania . . . . .	115	123	16,728,050	17,982,150	16,728,050	17,982,150	- 1,254,100
Maryland . . . . .	6	6	1,112,400	1,020,000	1,112,400	1,020,000	+ 92,400
Virginia . . . . .	15	17	142,000	516,000	142,000	516,000	- 374,000
West Virginia . . . . .	5	5	760,000	585,000	760,000	585,000	+ 175,000
Kentucky . . . . .	5	4	240,000	236,000	240,000	236,000	+ 4,000
Tennessee . . . . .	10	11	180,000	314,000	180,000	314,000	- 134,000
Alabama . . . . .	33	33	3,577,170	3,298,500	3,577,170	3,298,500	+ 278,670
Ohio . . . . .	69	69	11,299,000	11,729,600	11,299,000	11,729,600	- 430,600
Indiana . . . . .	18	18	4,399,200	4,108,000	4,399,200	4,108,000	+ 291,200
Illinois . . . . .	26	26	5,171,600	5,048,650	5,171,600	5,048,650	+ 122,950
Michigan . . . . .	4	4	665,000	665,000	665,000	665,000	—
Wisconsin . . . . .	5	5	386,000	386,000	386,000	386,000	—
Minnesota . . . . .	3	3	444,500	444,500	444,500	444,500	—
Missouri . . . . .	2	2	90,000	90,000	90,000	90,000	—
Colorado . . . . .	5	5	600,000	600,000	600,000	600,000	—
Utah . . . . .	1	1	130,000	135,000	130,000	135,000	- 5,000
Total completed . . . (b) 351	(c) 363	(d) 49,605,720	(d) 51,379,400	49,605,720	51,379,400	51,379,400	- 1,773,680
Total building . . . . .	3	2	588,900	302,750	588,900	302,750	+ 286,150
Grand total . . . . .	354	365	50,194,620	51,682,150	50,194,620	51,682,150	- 1,487,530

(b) Includes 54 coke furnaces which have been long idle or are likely to remain long inactive, the capacity of which is not included, as follows: New Jersey, 2; Pennsylvania, 15; Virginia, 11; Kentucky, 2; Tennessee, 6; Alabama, 5; Texas, 1; Ohio, 8; Wisconsin, 2, and Missouri, 2.

(c) Included 29 furnaces long idle, the capacity of which is not included, as follows: New Jersey, 1; Pennsylvania, 5; Virginia, 5; West Virginia, 2; Kentucky, 2; Tennessee, 4; Alabama, 3; Texas, 1; Ohio, 3; Wisconsin, 2, and Missouri, 1.

(d) Does not include annual capacity for ferromanganese, spiegelisen, ferrosilicon and other ferroalloys, nor capacity of coke furnaces long idle or not likely to resume operations in near future.

291,200, 278,670 and 175,000 tons, respectively. Since the first of the year two new furnaces have been added in Alabama, bringing additional capacity there of 413,900 tons.

Detailed figures are shown in the accompanying table taken from the Institute's reports for the last two years.



# Mileage Rates May Apply to Steel

Report to Interstate Commerce Commission Recommends  
Revision Based on J. & L. Scale—Some Reductions,  
but New England Rates Would Be Higher

WASHINGTON, Aug. 7.—A new set of railroad freight rates on iron and steel for the northeastern part of the country has been recommended for adoption by the Interstate Commerce Commission by Howard C. Faul and C. M. Bardwell, examiners on the staff of that body. They recommend it for "the removal of undue prejudice and undue preference."

If their recommendation is approved by the Interstate Commerce Commission, rates will be made in accordance with mileage scale that will force the steel industry to adapt itself to many new conditions.

Assuming that the rates from Pittsburgh to Chicago, from Chicago to St. Louis, from Pittsburgh to New York and from Chicago to New York are of prime importance, the effect of their recommendation is shown in the following summary:

The present rate of 34c. per 100 lb. from Pittsburgh to Chicago will remain unchanged. The present rate of 22c. from Chicago to St. Louis will be raised to 26c. The present rate of 34c. from Pittsburgh to New York will be reduced to 33c. and the rate from Chicago to New York will be cut from 56.5 to 47c.

## Ohio Short-Haul Rates in Discard

These recommendations are the result of a lumping together of seventeen formal docket complaints and investigation docket cases created largely by the commission's decision in 1925 in the Jones & Laughlin complaint. One complaint was made against the so-called short-haul rates in Ohio, maintained by authority of Ohio law, to move steel from one plant to another in the steel producing territory. Adoption of the Faul and Bardwell recommendations would put the Ohio rates into the discard.

Parties interested were notified, when the report was served on them, that they would have until Sept. 15 to file exceptions to the recommendations and that replies to the exceptions would have to be in hand not later than Oct. 1. Those dates are taken by those familiar with the practices of the rate body as indicating arguments on the subject late in October or early in November.

This report was made in a general investigation under the Hoch-Smith resolution, the legislation enacted in January, 1925, in which Congress told the rate body to give a preference in freight rates to agri-

cultural products on account of the "existing depression." The commission gathered the objections to the J. & L. scale into one bunch and called the combination a Hoch-Smith resolution investigation. There are nearly a dozen of such investigations, each intended to give the regulating body such a view of rates that it may pick out the commodities upon which higher rates may be imposed to the end that rates on agricultural products may be lowered.

All the testimony and the arguments revolved around the J. & L. scale. The examiners reported that, as a whole, the steel industry was prosperous, or at least not in a depression.

There is no estimate as to the money effect the adoption of the mileage scale would have upon the railroads. Men who have been working on the case estimate that rates made in accordance with the new scale would deprive the railroads of about \$2,000,000. That would be a small sum in relation to the immense revenue the railroads derive from iron and steel in the northeastern part of the country.

Only domestic rates are covered by the report. The railroads took the export rates out of the case when they reduced the export rates to Atlantic ports to the basis of 60 per cent of the domestic basis.

The examiners recommend the abolition of differentials, port and Michigan, and of bridge arbitraries. Abolition of the port differentials, they figure, will mean little as the export rates are not involved. Port differentials were devised so as to equalize exports regardless of which port the exporter used.

Michigan differentials were devised about 10 years ago when class rates were revised in that part of the country between the Buffalo-Pittsburgh line on the east and the Mississippi River on the west, on account of the light traffic in Michigan north of Detroit. Steel took the differential adjustment because it moved and still moves generally on fifth class rates.

This scale is a specific scale not definitely related to any class rate. Therefore the examiners say there is no need to take care of light density traffic areas.

## Higher Rates for New England

New England is to be the only part of the northeastern section that is to have rates on a higher level. Rates

into New England are to be 10 per cent higher than the rest of the section involved. Rates into and out of New England are to be on the scale. That will mean a healthy boost in rates now held down by the so-called wire list.

Another rise in rates is to take place in the low-rated section of western steel territory, particularly the district between Chicago and St. Louis. The group adjustment which shippers and railroads agreed upon to settle the turmoil created by the J. & L. scale is to be broken up and straight mileage applied. Under the J. & L. scale the railroads could have made the rate between Chicago and St. Louis 24.5c. The violent objections by the shippers forced the railroads to forego what they were privileged to take. Now the examiners say the railroads should be authorized to take more than the J. & L. scale would have given them.

## Shippers Asked for Reductions

The railroads opposed any reduction in their revenues. All the shippers asked for reductions. Some of their proposals, if adopted, would cut heavily into the revenues of the railroads.

The Faul and Bardwell scale uses the J. & L. scale initial rate as its point of departure, but beyond the first block and up to and including 70 miles it is half a cent lower than the J. & L. scale. Between 70 miles and 500 miles it is in excess of that scale, the excess ranging from a half to a whole cent per 100 lb. For distances in excess of 500 miles, the new scale is lower than the one ordered in the J. & L. case. At 600 miles, the new scale calls for a rate of 38c., while the J. & L. rate for that distance is 40c. At 700 miles, the new scale rate is 41c. and the J. & L. rate 45c. At 1000 miles, the new rate is 50c. and the J. & L. rate 60c.

Only a limited amount of grouping of rates at points of origin and destination will be permitted. No origin points may be grouped on traffic going less than 150 miles. No destination groups will be allowed on traffic going less than 450 miles. Groups 20 miles wide may be established in accordance with the practice in making class rates in the central territory. The scale itself also permits limited grouping.

The abolition of bridge differentials at Ohio and Mississippi crossings will mean little because there are no out-

standing differentials on iron and steel except at Louisville. There are differentials on some iron and steel articles at St. Louis.

No attempt is made in the report to deal with the New York harbor situation. That situation is to be dealt with in the Eastern Class Rate Investigation, now pending.

#### Special Provision for Cast Iron Pipe

The iron and steel list is left as it stands although special provision is proposed for cast iron pipe and annealing pots. On account of the strong competition of Southern pipe foundries, the examiners say that where rates in the North and East have been made especially on account of that competition they are to be continued. As to annealing pots, they say the rates on them should not be any higher than on ingot molds. They said that nothing in the record warranted any change in the minimum carload of 36,000 lb. The actual loading, they said, averaged nearly double that figure. An increase in the minimum they said would seriously affect the jobber and small fabricator without increasing efficiency in the use of railroad equipment.

Faul and Bardwell said the record left no doubt about the desirability of a thorough revision of the rate structure. They said both shippers and railroads alleged or conceded that the present rates lacked uniformity, were

full of inconsistencies and resulted in prejudice and preference.

No transportation conditions between New England on the east and the Mississippi River on the west, they said, warranted a difference in the rate level. They said that every proposal submitted, although they differed widely as to the rate level, was designed to remove inconsistencies and to produce a more harmonious rate structure.

The mileage scale recommended by the examiners is as follows:

(Rates are in cents per 100 lb.)		
5 miles and under	.....	6
10 miles and over	.....	6.5
15 miles and over	.....	7
20 miles and over	.....	7.5
25 miles and over	.....	8
30 miles and over	.....	8.5
35 miles and over	.....	9
40 miles and over	.....	9.5
45 miles and over	.....	10
50 miles and over	.....	10.5
55 miles and over	.....	11
60 miles and over	.....	11.5
65 miles and over	.....	12
70 miles and over	.....	12.5
75 miles and over	.....	13
80 miles and over	.....	13.5
85 miles and over	.....	14
90 miles and over	.....	14.5
95 miles and over	.....	15
100 miles and over	.....	15.5
105 miles and over	.....	16
110 miles and over	.....	16.5
120 miles and over	.....	17
130 miles and over	.....	17.5
140 miles and over	.....	18
150 miles and over	.....	18.5

160 miles and over	150.....	19
170 miles and over	160.....	19.5
180 miles and over	170.....	20
190 miles and over	180.....	20.5
200 miles and over	190.....	21
210 miles and over	200.....	21.5
220 miles and over	210.....	22
230 miles and over	220.....	22.5
240 miles and over	230.....	23
250 miles and over	240.....	23.5
260 miles and over	250.....	24
280 miles and over	260.....	25
300 miles and over	280.....	26
320 miles and over	300.....	27
340 miles and over	320.....	28
360 miles and over	340.....	29
380 miles and over	360.....	30
400 miles and over	380.....	31
425 miles and over	400.....	32
450 miles and over	425.....	33
475 miles and over	450.....	34
500 miles and over	475.....	35
535 miles and over	500.....	36
565 miles and over	535.....	37
600 miles and over	565.....	38
635 miles and over	600.....	39
665 miles and over	635.....	40
700 miles and over	665.....	41
735 miles and over	700.....	42
765 miles and over	735.....	43
800 miles and over	765.....	44
835 miles and over	800.....	45
865 miles and over	835.....	46
900 miles and over	865.....	47
935 miles and over	900.....	48
965 miles and over	935.....	49
1,000 miles and over	965.....	50
1,035 miles and over	1,000.....	51
1,065 miles and over	1,035.....	52
1,100 miles and over	1,065.....	53
1,135 miles and over	1,100.....	54
1,165 miles and over	1,135.....	55
1,200 miles and over	1,165.....	56

## Toolroom Problem of Small Plants

### Plan to Eliminate It by Means of a Cooperative Venture Participated in by Those Needing Tooling Service

BY BRUNO C. LECHLER AND EDWARD W. WEILER\*

A MANUFACTURER of metal goods, in order to make his product economically, must provide himself with tools specially designed and specially built for his particular product. Of course he uses such standard tools as hammers, screw drivers, etc., and such standard tools as punch presses, lathes, drill presses, etc., but the efficiency of special tools that he must design for holding while working, for aiding in assembly for locating holes, etc., on his particular product are the factors in determining his ability to turn out his product quickly and cheaply and which enable him to defy competition.

Large manufacturing concerns who are continually making new products can afford and do have their own toolrooms and tool designers; the smaller manufacturer usually depends on the outside jobbing toolshop, although not always with satisfaction.

Tool making is a highly specialized art and for this reason the smaller manufacturer cannot make his own

tools to the best advantage. An efficient toolmaker is an expensive man; he cannot be picked at random from the street; he is not in the same class with the ordinary production hand. Not all men who call themselves toolmakers are efficient at their trade. Quite often a toolmaker earning 80 to 90 cents an hour can spoil a piece worth \$50 or \$60 before it can be discovered that he is an inferior worker. Furthermore, not only is a badly needed piece spoiled, but a week's valuable time may be lost.

Toolroom equipment is expensive to buy. It must be of a much higher quality than ordinary production machinery. It must be capable of high accuracy. It must be handled with extreme care by some one familiar with it. Unless an expert toolmaker is put to work on it, it will soon lose the efficiency needed for producing good dies and tools. If this machinery is not used constantly it represents a large idle investment. Therefore the smaller manufacturer who only needs new tools occasionally, cannot economically afford to keep it. It is

sounder business for him to patronize the jobbing tool shop.

We may say, therefore, that it is very expensive for the smaller manufacturer to make his own tools for the following reasons:

- 1—Because of limited capital his toolroom equipment must necessarily be limited in scope
- 2—As this equipment is idle a majority of the time, it becomes an unproductive investment, taking up needed space, requiring maintenance and being of use only a small part of the year
- 3—The toolmakers hired will probably be for the most part inefficient. Even granting, however, that the tool gang is efficient, it will lack expert supervision
- 4—A good tool engineer, needed to supervise a tool gang, cannot be picked up at short notice for a few weeks' period; he must be trained to the job

In spite of all these objections many smaller manufacturers do maintain their own toolroom at a considerable loss, because they are of the opinion that they cannot get fair prices or fast enough delivery from the jobbing toolshop when they are in the market for their tools. With such manufacturers it is generally a case of requiring a large number of tools in a great hurry, and they hesitate to place themselves at the mercy of an outside agency. Since the jobbing tool shop has quite a number of customers who do not give it a constant flow of work, it must cater to the

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average, and should the toolshop be overburdened at any particular time, it can only in fairness to all its customers divide its facilities as evenly as possible among its customers.

The result is dissatisfaction all around. For this reason the manufacturer often prefers to play safe and have his own equipment so he can have his set of dies and tools when he needs them.

Quite often, too, tooling up a new product requires considerable experimentation and adjustment, which precludes the possibility of agreeing on a contract price before the tooling up is begun. This often leads to arguments and misunderstandings, and the manufacturer feels that he is getting off cheaper in the end by having his own toolshop.

To eliminate these various causes for hesitancy on the part of the smaller manufacturer to giving his work out to the jobbing shop, and at the same time attempting to relieve him of the burden of an unproductive investment, the authors of this article propose the organization of a manufacturers' cooperative toolshop to serve those manufacturers who become members, to their mutual benefit.

The cooperative tool company centrally located and jointly operated takes care of all the enumerated difficulties in this way:

- 1—The cooperative shop is large enough to get all the necessary equipment consisting of substantial and efficient machinery. Single pieces of equipment might cost as high as \$10,000, while the average small manufacturer would not care to invest more than \$5,000 in his whole toolroom.
- 2—The cooperative shop is big enough to maintain a proper organization; with a tool engineer, draftsman, a well trained tool gang specialized on dies, jigs, fixtures, etc., some for heavy work, such as automobile fenders, and others for light work, such as hair springs on galvanometers, etc. In the manufacturer's own toolroom the man accustomed to repair a 2-ton press is often expected to make a tool accurate to 0.0001 in., which is anything but efficient.
- 3—It is not likely that more than one manufacturer will be using the facilities of the shop to a large extent at one time, so that any member could probably have three-fourths of the shop's equipment and personnel available for its use whenever needed, yet at the same time the shop need not neglect its other manufacturer members. In this way work is more nearly uniform, men have steadier employment, overhead is reduced, and the cost of doing work is lowered.
- 4—Under the proposed scheme each manufacturer member is to be a stockholder. He has access to the records, and shares in the profits; he has a say in the management. His tools will be built at the lowest possible cost; any profits will come back to him in dividends.
- 5—In order to prevent leakage of confidential methods of manufacture, etc., manufacturer members could be limited to one in each field of manufacture.

The Cooperative Tool Co. could be capitalized, say for \$100,000; \$50,000 to be paid in at the start, and the rest

of the stock to be held in the treasury.

The management of the shop would be under the direction of an experienced tool engineer. He would have as an assistant a draftsman and shop foreman, the duties of which offices could be performed either by one or two men, as the contingencies of the moment might demand. These men would be under a salary and at the same time would hold some of the common stock so as to work on a profit sharing basis. The direct management would be by a board of directors, elected by participating member stockholders and comprising, as far as feasible, one representative from each manufacturer member and also the manager of the shop.

Work would be done for each manufacturer member as it was needed on open order, the work to be billed at an hourly rate, plus material at cost. The hourly rate would be set so as to be on a par with that charged by regular jobbing tool shops. This would, of course, take into consideration, overhead, etc., and would be what the manufacturer would have to pay were he having his work done by an outside toolshop.

Whenever there was not enough work in the cooperative shop from participating members, outside jobbing work could be solicited, in order to keep the shop busy. However, the requirements of participating members would at all times receive preference.

The shop would be so organized that it would be possible to provide any participating member with the services of a repair toolmaker at an instant's notice. He could have three men put on work for him within a day's notice and six men within three days' notice. This would more than take care of any immediate rush jobs.

The tool engineer would divide his time between supervising the shop and designing dies or tools for participating members.

It is felt that with the plant as designed by us, a minimum of \$150,000 worth of tool work could be undertaken in a year. Because of the fact that a good many of the reoccurring idle periods so prevalent in a jobbing shop could be eliminated, the overall efficiency could be increased, and because the overhead could be reduced to a minimum, the profits of the cooperative toolshop would be exceedingly high, probably amounting to as much as \$30,000 for the first year, based on a \$150,000 gross business. This could be applied against dividends and would show a handsome return to each participating member against his investment. This should make the proposition exceedingly attractive to the smaller manufacturer who not alone could cut his original toolroom investment to as much as one-tenth of what his own toolroom would cost him, but could at the same time secure superior service and quality, and be relieved of all worry in connection with his toolwork.

The participating members would thus relieve themselves of the responsibility of maintaining a toolroom, which is of necessity separated from their production routine and is always a source of constant attention.

This plan for alleviating the toolroom difficulties of the small manufacturer should appeal to all farsighted managers of those manufacturing concerns who have not their own toolrooms, and who are dissatisfied with conditions as they find them at the present time in outside jobbing shops. It is planned to soon put this plan into actual operation in the Metropolitan New York district.

## Coming Meetings

### August

**Ohio State Foundrymen's Association.** Aug. 16 and 17. Annual convention, Cedar Point, Ohio. Arthur J. Tuscany, secretary-manager.

**American Society of Mechanical Engineers.** Aug. 27 to 30. Summer meeting starting with Great Lakes cruise at Buffalo, Aug. 20, followed by sessions at St. Paul and Minneapolis. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

**National Council of Y. M. C. A.** Aug. 29 to Sept. 2. Conference on human relations in industry, Silver Bay, Lake George, N. Y. Arthur H. Young, 165 Broadway, New York, chairman committee in charge of Silver Bay conference.

### September

**Canadian National Exhibition.** Sept. 4 to 7. Second steel and power show, University of Toronto Arena, Toronto, Canada. C. Bradshaw, 24 Front Street, West, Toronto, executive director.

**Institute of Metals.** Sept. 4 to 7. Fall meeting, Liverpool, England. G.

Shaw Scott, 36 Victoria Street, London, S. W. 1, England, secretary.

**Lake Superior Mining Institute.** Sept. 7 and 8. Joint meeting with iron and steel division of the American Institute of Mining and Metallurgical Engineers, Crystal Inn, Crystal Falls, Mich., starting place. A. J. Yungbluth, Ishpeming, Mich., secretary.

**American Manganese Producers' Association.** Sept. 10 and 11. Annual meeting, Mayflower Hotel, Washington. J. Carson Adkerson, Metropolitan Bank Building, Washington, president.

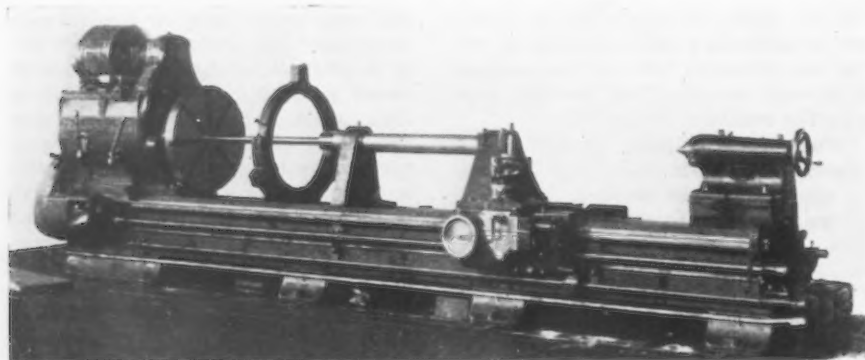
**American Society of Mechanical Engineers.** Sept. 17 to 20. Second national fuels meeting, Hotel Cleveland, Cleveland. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

**American Electrochemical Society.** Sept. 20 to 22. Fall meeting, Hotel Kanawha, Charleston, W. Va. Colin G. Fink, Columbia University, New York, secretary.

**American Society of Mechanical Engineers.** Sept. 24 to 27. Machine shop practice meeting, Cincinnati. L. C. Morrow, 29 West Thirty-ninth Street, New York, chairman of division.

## Lathe With Boring Bar Attachment for Cylinders

A 36-in. by 22-ft. lathe with boring bar attachment for turning, boring and recessing large bushings for three-cylinder locomotive cylinders, furnished recently by the Niles Tool Works Co. division of the Niles-Bement-Pond Co., 111 Broadway, New York, for a foreign locomotive builder, is shown in the accompanying illustration.



*With the Boring Bar Attachment Large Bushings for Locomotive Cylinders of Foreign Manufacture Are Turned, Bored and Recessed*

tration. In the United States the general practice would be to perform these operations on a vertical boring and turning mill, but the design of the bushings and certain other factors have made it desirable to employ an engine lathe for the work.

The machine is the Niles standard Time Saver lathe with the addition of a boring bar bracket bolted across the wings of the carriage supporting a heavy boring bar. The boring bar has

an outer support and a pilot bar carried in a bushing on the spindle nose. The end of bar is fitted with a key to which a boring head is secured. A large center rest is also furnished.

The bushings are about 40 in. long, with an outside diameter of 27½ in. and a bore of 25½ in. They are cast with a flange for chucking on a faceplate. After chucking a light cut is taken on the outside diameter to provide a bearing for the large center

rest. The casting is then ready for the boring operation. After boring is completed, the bushing is mounted on an arbor between centers and the excess length of bushing and flange cut off, the outside diameter turned, both ends faced and recesses machined in both ends. The process requires two operations, but it is claimed that the results secured more than offset the extra time consumed.

## Slitter and Coiler Combined to Permit Two Operations

USE of auxiliary equipment to permit the accomplishment of two operations at a single handling of material is illustrated in the slitter and coiler here pictured, which have been built by the Torrington Mfg. Co., Torrington, Conn. Although designed primarily for operation as a single unit, either of the two machines may be used separately if desired.

The slitting machine is of the three-housing type, in which the outer hous-

ing is withdrawn to an extension of the bed pedestal in changing cutter blades and spacing collars. Arbors are 6¾ in. in diameter, taking slitter blades 12 in. in diameter, 1 in. thick. The slitter has a capacity for cutting metal ¼ in. thick up to 42-in. trimmed width. An unusually rugged drive is provided through 50-hp. motor, with speed reduction through herringbone gears inclosed in an oil-tight case. Cutter arbor pinions, also of herringbone type, are located between the pinion housings and are entirely inclosed in grease-tight case. Cylind-

drical couplings connect the motor to the pinions and the pinions to the slitting machine. Adjustment of the top arbor is in parallel by means of a handwheel which operates lifting screws through worm gears. Provision is also made for lateral adjustment of the top arbor in relation to the bottom.

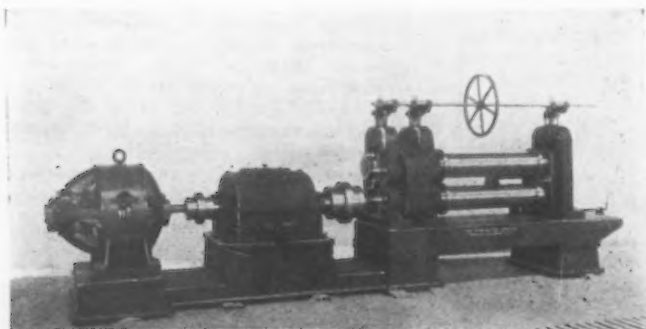
The coiler is of the usual three-roll type equipped with pinch or feed rolls. It permits the immediate removal of the coil without the necessity of stripping it from a block. An important feature of the coiler is the air-operated coil ejector, which is necessary because of the heavy coil made by the machine. Drive of coiler is by 25-hp. motor through pinions inclosed in an oil-tight case, and thence by spindles and couplings to the feed and coiling rolls.

## New Belt Conveyor Idler

A NEW idler for belt conveyors has been placed on the market by the Fairfield Engineering Co., Marion, Ohio. Centrifugal cast iron pipe is used for constructing the roller, and anti-friction bearings and direct high-pressure lubrication are included. Owing to the uniform wall thickness of the pipe and its trueness to shape, it is said to run without vibration and the cast iron is depended on to resist rust and abrasion. The grease pipes are extended to the end of the supporting frame, making the connection accessible and eliminating need to reach under moving belts.

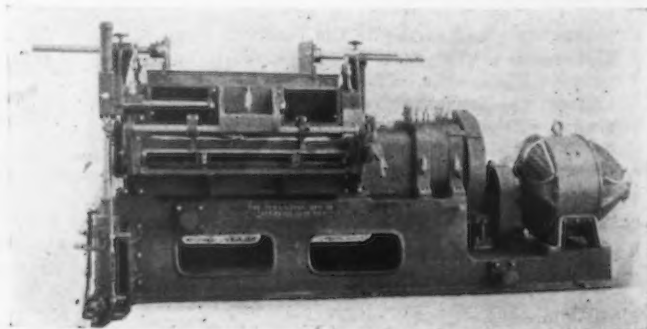
Interchangeability of rollers is stressed. Bearing adjustment is said to be positive to any desired degree of fineness. The face of the return roller supports the belt 1½ in. above the bottom flanges of the springer channels, giving good belt clearance above supporting frame cross members.

The General Electric Co. paid \$1,600,905 in supplementary compensation on July 30 to employees in its various plants and offices who have been with the company for five years or more. This sum, the largest ever distributed by the company in this form, represents 5 per cent of the earnings of employees for the six months ending June 30, 1928. The largest amount, \$499,425, was paid to employees of the Schenectady works.



*The Slitting Machine, with Which the Coiler Is Used in Combination, Has Capacity for Strips Up to 42-In. Trimmed Width, ¼-In. Thick*

*The Coiler, of Three-Roll Type with Feed Rolls, Permits Removal of the Coil without the Necessity of Stripping It from a Block. It has an air-operated coil ejector*





## Improved Piping Features New Broaching Machine

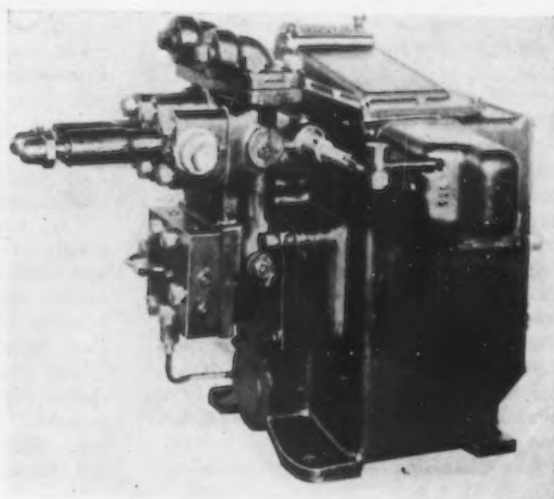
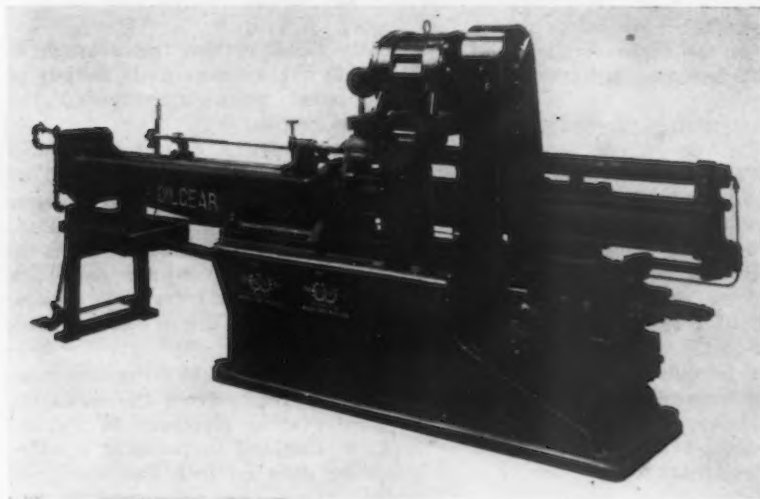
**S**IMPLIFICATION of the piping from the pump to the cylinder, making for greater compactness, is one of several refinements embodied recently in the high-speed broaching machines manufactured by the Oil-gear Co., Milwaukee. In the previous design the safety and unloading

to the pump itself. Piping beneath the cylinder is thus eliminated and the appearance of the machine greatly improved, as shown in the accompanying illustration of the improved No. 3 broaching machine. Flange and bolted pipe connections are employed.

A control bracket guard, intended to prevent possible injury to the operator's hands, is an added safety feature. Sea ring ram packing has

different pull center lines. This feature is of particular advantage in broaching keyways, when it is necessary to take two draws with a cutter-bar and then raise the center line of the draw-bar for the section cut, in order to obtain the proper depth of keyway.

The improved variable delivery pump, illustrated herewith, is designated as the type MD. Its displace-



*Simplification of the Piping From the Pump to the Cylinder Makes For Greater Compactness. The smaller cut shows the improved variable-delivery pump*

valves were mounted in the pipe lines, which arrangement required an unnecessary amount of piping and joints. In the improved pump the safety and relief valves have been manifolded on

been adopted as standard on all machines. The crosshead of the machine is now equipped with convenient adjustment for raising and lowering the drawhead slide to accommodate

ment is 17.1 cu. in. per revolution. The normal working pressure is 700 lb. per sq. in. and the peak pressure, 900 lb. per sq. in. Use of a 10 to 15 hp. motor is recommended.

## Air-Motor Hoist of 10 Tons Capacity

**A** NEW air-motor hoist of 20,000-lb. capacity is being offered by Ingersoll-Rand Co., 11 Broadway, New York. In railroad shops this hoist is used for handling locomotive drivers at lathes and presses, and for other heavy lifting work which would ordinarily tie up a crane.

The hoist construction employs a four-cylinder air motor geared to a rope drum, and all inclosed in a compact and dirt-proof housing. The gears are made of special steel and heat treated to insure extra strength and wearing qualities. They operate in a bath of semi-fluid grease, completely inclosed. Ball bearings or bronze bushings are provided at all points where experience has indicated that they will add to the efficiency and life of the hoist.

An automatic safety brake holds the load at any desired position for any length of time, regardless of air pressure. Control of the hoist movement is obtained by a graduated throttle and a well-balanced motor. The latter is practically without vibration. The cylinders are renewable and interchangeable, making it easy and inexpensive to renew them if worn after long service.

This hoist can be furnished with either a top hook or a chain-driven trolley as standard. Its weight,

equipped with top hook, is 1300 lb.; equipped with chain-driven trolley, 1800 lb. The pipe connection is  $\frac{3}{4}$ -in.



*An Automatic Brake Holds the Load at Any Position Regardless of Air Pressure*

The cable is  $\frac{9}{16}$  in. in diameter and 83 ft. long and the maximum lift is 16 ft.

The Clipper Belt Lacer Co., Grand Rapids, Mich., announces a 10-in. open-end Clipper belt cutter which will cut and square belting up to and including 10 in. in width.

## Power House Will Have 215,000 Hp. Turbo-Generator

**T**HE New York Edison Co., in its new East River generating station, at Fourteenth Street, New York, will have the largest single-shaft, single-unit electric generator in the world. This turbo-generator, which will develop 160,000 kw., or 215,000 hp., is being built by the General Electric Co.

The steam generating units, which will be of the new water wall type, are to be installed by the Combustion Engineering Corporation. Each of the units required will have an aggregate heating surface of 45,120 sq. ft. and each is to produce 550,000 lb. of steam an hour, though studies are being continued to obtain a maximum capacity each of 800,000 lb. or more an hour.

Two 48-in. Hartzell-Charavay fans were recently installed in the 8-in. tie mill of the Atlantic Steel Co., Atlanta, Ga. The Charavay fans, which are made by the Hartzell Propeller Co., Piqua, Ohio, have a propeller of the type which has proved successful in airplane construction. The propeller blade is made of a metal alloy and is commonly direct connected to the electric motor for driving it, and the supporting ring and frame of the fan unit are constructed of aluminum for lightness and rust prevention.

# European Mills Maintain High Prices

British Expect More Orders With Less Foreign Competition—United States Investigates Imported Steel Markings

(By Cable)

LONDON, ENGLAND, Aug. 7.

THE iron and steel markets are quiet after the holidays and the outlook is unfavorable. Northeast Coast pig iron output has been restricted to 29 blast furnaces and foundry iron prices are being maintained, despite the lack of new demand. There was partial resumption of Scottish production last week and full resumption is expected this week. The holiday was prolonged by depressed conditions, which have provided only a meager accumulation of orders for iron and steel.

Steel makers expect an improve-

ment based on the higher tendency of Continental prices and on Government aid.

New shipbuilding contracts are especially limited. Clyde output in July was 13 vessels of 38,700 tons, including one 10,000-ton cruiser.

Continental markets are strong as a result of sustained overseas demand and mills are well sold ahead. Belgian output in June was 321,000 metric tons of pig iron and 32,000 tons of steel ingots.

Tin plate is quiet and mills are closed for their annual week of suspension. Inquiry, however, is promising. Galvanized sheets are quiet and the black sheet market inactive.

slightly smaller than the average in May, but the average daily output of rolled steel products exceeded the previous month.

Domestic prices of steel products for August have been announced as 111.50 m. (\$26.62) per ton for blooms; 119 m. (\$28.40) per ton for billets; 138 m. (\$32.94) per ton for structural shapes; 141 m. (\$33.66) for steel bars and 164 m. (\$39.15) for steel bands. The usual rebates are quoted on sales to South Germany.

Steel producers here do not seem to expect any result from the initiative of Conservative members of Parliament in England in favoring a safeguarding duty on iron and steel. It is pointed out that this question was repeatedly under consideration prior to the war as part of the movement for tariff reform, but was strongly opposed by British shipbuilders and other manufacturing consumers, who claimed that their ability to compete in world markets was largely based upon their supply of low-priced, duty-free steel from abroad.

At the meeting of the International Steel Cartel last week some important changes were made. The German export quota, which has been limited to 275,000 tons a month in return for a reduction to \$1 a ton in the German penalties for overproduction, was advanced to 300,000 tons a month. In addition, the entire system of fines for exceeding output was revised. The

## German Steel Consumers Well Stocked

Improved Buying Expected in Fall—Steel Cartel Revises Fines—Czechoslovakia Joins for Export

BERLIN, GERMANY, July 21.—The Rhenish-Westphalian steel industry continues to report a falling off in orders, but some allowance is made for the usual summer quiet and for the heavy purchases by consumers prior to the May advance in prices. Steel bars are still in good demand and delivery terms extended. Probably the least activity is reported by manufacturers dependent upon orders from the Railroads Corporation. In some quar-

ters greater activity is expected in the next two or three months.

Except for billets, demand for semi-finished material has declined considerably. Building construction is quite active and there is a good demand for structural material. Export business is better, a reflection of the reaction on the Brussels market following termination of the Antwerp dock workers' strike. In June the average daily output of steel ingots was

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £ as follows:

Durham coke, del'd....	£0 17½s. to £0 17½s.	\$4.25 to \$4.31
Bilbao Rubio ore*.....	1 2½	5.48
Cleveland No. 1 fdy....	3 8½ to 3 9½	16.64 to 16.89
Cleveland No. 3 fdy....	3 6	16.04
Cleveland No. 4 fdy....	3 5	15.80
Cleveland No. 4 forge..	3 4½	15.68
Cleveland basic (nom.)..	3 5	15.80
East Coast mixed.....	3 8 to 3 9	16.53 to 16.77
East Coast hematite....	3 10½	17.13
Rails, 60 lb. and up....	7 15 to 8 5	37.66 to 40.10
Billets .....	6 0 to 6 15	29.16 to 32.81
Ferromanganese .....	13 15	66.83
Ferromanganese (export)..	13 0 to 13 5	63.18 to 64.39
Sheet and tin plate bars, Welsh .....	6 0	29.16
Tin plate, base box....	0 18 to 0 18½	4.37 to 4.43
Black sheets, Japanese specifications .....	13 7½	65.00
Ship plates .....	7 12½ to 8 2½	C. per lb. 1.63 to 1.74
Boiler plates .....	9 0 to 10 10	1.92 to 2.25
Tees .....	8 2½ to 8 12½	1.74 to 1.84
Channels .....	7 7½ to 7 17½	1.58 to 1.69
Beams .....	7 2½ to 7 12½	1.53 to 1.63
Round bars, ¾ to 3 in..	7 5 to 7 15	1.55 to 1.66
Steel hoops .....	9 0 to 10 0	1.92 to 2.14
Black sheets, 24 gage....	9 15 to 10 0	2.09 to 2.14
Galv. sheets, 24 gage....	13 7½	2.86
Cold rolled steel strip, 20 gage, nom. ....	16 0	3.42

\*Ex-ship, Tees, nominal.

### Continental Prices All F.O.B. Channel Ports

(Per Metric Ton)			
Foundry pig iron (a):			
Belgium .....	£3 3s. to £3 5s.	\$15.32 to \$15.80	
France .....	3 3 to 3 5	15.32 to 15.80	
Luxemburg .....	3 3 to 3 5	15.32 to 15.80	
Basic pig iron (nom.):			
Belgium .....	3 1 to 3 2	14.82 to 15.07	
France .....	3 1 to 3 2	14.82 to 15.07	
Luxemburg .....	3 1 to 3 2	14.82 to 15.07	
Coke .....	0 18	4.37	
Billets:			
Belgium .....	4 15½	23.21	
France .....	4 15½	23.21	
Merchant bars:			C. per lb.
Belgium .....	5 16	1.28	
France .....	5 16	1.28	
Luxemburg .....	5 16	1.28	
Joists (beams):			
Belgium .....	4 18	1.08	
France .....	4 18	1.08	
Luxemburg .....	4 18	1.08	
Angles:			
Belgium .....	5 10 to 5 12½	1.21 to 1.24	
½-in. plate:			
Belgium (a) .....	6 12	1.45	
Germany (a) .....	6 12	1.45	
3/16-in. ship plate:			
Belgium .....	6 8	1.41	
Luxemburg .....	6 8	1.41	
Sheets, heavy:			
Belgium .....	6 1	1.33	
Germany .....	6 1	1.33	

(a) Nominal.



penalty for exceeding the quota by 7.50 per cent or less is reduced from the former \$4 a ton to \$1 a ton; for producing more than 7.50 per cent or less than 10 per cent the fine is \$2 a ton. On all production in excess of 10 per cent of the quota the penalty continues at \$4 a ton. This applies to all members except Germany, regardless of whether the excess is sold at home or for export. For Germany, this ruling applies only to export.

The Central European group of

members in the International Steel Cartel has been dissolved and Austria and Hungary have become direct members of the cartel. Czechoslovakia, however, becomes a member on new terms, which leave production for the domestic market without any allotment, but set an annual export quota of 432,836 metric tons, the actual export of Czechoslovakia in 1927. Should the export quota be exceeded the usual penalties effective with other members are applied.

## Foreign Steel Prices Still High

### Importers Here Sell Little—Steel Marked for Country of Origin—Export Orders Small

NEW YORK, Aug. 7.—Importers of steel from European mills continue rather inactive, unable to secure much business at the present level of Continental prices. A further advance in the foreign market has brought quotations on Bessemer steel bars to 1.83c. to 1.85c. per lb., delivered New York, to which must be added the cost of inspection and packing. Beams range from 1.68c. to 1.70c. per lb., duty paid, New York, and channels are about 1.75c. per lb., duty paid. While there has been some inquiry recently for wire nails, not much business has been transacted, as most buyers are evidently interested only in small lots of a few hundred kegs.

Recent notices sent by the United States Treasury Department to importers of steel, informing them that certain shipments of bars and shapes were being investigated because they were not marked as to the country of origin, appear to be the preliminary steps to a test case before the United States Customs Court. A leading American steel company is understood to have requested a complete statement by the Government as to the exact products which should be marked with the name of the country of origin under the tariff act. As a result of this, importers believe that the present investigation was instituted with the intention of selecting some shipment, of which a test case would be made to clarify the question.

Marking of imported material is covered in Section 304 of the Fordney-McCumber tariff. The section reads in part as follows:

Sec. 304. (a) That every article imported into the United States, which is capable of being marked, stamped, branded, or labeled, without injury, at the time of its manufacture or production, shall be marked, stamped, branded, or labeled, in legible English words in a conspicuous place that shall not be covered or obscured by any subsequent attachments or arrangements, so as to indicate the country of origin. Said marking, stamping, branding, or labeling shall be as nearly indelible and permanent as the nature of the article will permit.

This section of the tariff further states that: "Unless the article is exported under customs supervision, there shall be levied, collected, and paid upon every such article which at

the time if importation is not so marked, stamped, branded, or labeled, in addition to the regular duty imposed by law on such article, a duty of 10 per centum of the appraised value thereof, or if such article is free of duty there shall be levied, collected, and paid upon such article a duty of 10 per centum of the appraised value thereof."

In a Treasury Decision, signed by Assistant Secretary Lincoln Andrews and dated Nov. 3, 1925, it is pointed out that many small articles of steel or iron cannot be marked without injury and are admitted without such marking to indicate the country of origin, other than the markings on the containers. The decision further points out that this practice is in harmony with various rulings of the department and should be continued. "This applies to such articles as tin plate, sheets of iron or steel, bolts, nuts, washers, nails, spikes, screws, rivets and similar articles such as are

usually imported in boxes, kegs, or other containers.

"Iron and steel in various forms, such as blooms, billets, bars, beams, angles, or other forms of structural iron or steel, steel rails, fish plates, pig iron and iron or steel in other forms not manufactured into articles are regarded as material and not subject to marking to indicate the country of origin."

It is believed among importers that the present action is being brought about by a domestic steel maker in order that the definition of "material" may be decided and articles which need not be marked with the country of origin will be more completely specified. Any action before the Customs Court would not be taken until fall.

#### Export Orders Small

Exporters to South American markets and the Far East are fairly well occupied with inquiries for various steel products, but tonnages are in most cases small. A recent inquiry from Japan for about 190 tons of structural material is understood to have gone to a European mill, but about 400 tons of channels for the Imperial Government Railways in Japan was placed with a mill in the United States. There have been some small inquiries for steel bars recently from Japan and the usual export quotation by this country is reported to be about \$45 per ton, c.i.f. Japanese port.

In rails, about 360 tons of 91-lb. high T-rails for a privately owned railroad in the Moji district of Japan were placed with an American maker and 300 tons of 91-lb. high T-rails for the Ugigawa Denki Kido Kaisha were also awarded to a mill in the United States. Not much export business is reported in either light gage sheets or tin plate.

### Belgian Market Active and Prices Higher

ANTWERP, BELGIUM, July 20.—A larger volume of business is being placed and prices are increasing slowly. Buyers are offering less resistance to advances and some sizable purchases have been made, especially by German and British buyers. Pig iron is quiet with the domestic price of No. 3 phosphoric foundry grade at 585 fr. (\$16.40) per ton, at the furnace and the export prices about £5 2s. 6d. (\$15.40) per ton, f.o.b. Antwerp.

In semi-finished material there is improved demand and mills seem to be fairly well booked with orders. Prices have advanced and are firm with blooms scarce at £4 5s. 6d. to £4 12s. 6d. (\$20.78 to \$22.48) per ton for 4-in. to 8-in., billets firm at £4 14s. (\$22.84) per ton for 3-in. and £4 15s. (\$23.09) per ton for 2-in. billets. There is an active demand for sheet bars and available supplies are small. The price has advanced to about £4 16s. (\$23.33) per ton, f.o.b. Antwerp.

The higher prices now prevailing are quite firm and mills are well

booked with business. Production of steel bars is limited so that there is only a small supply available with the market at £5 14s. 6d. per metric ton (1.26c. per lb.). Beam prices are strong at about £4 17s. 6d. per ton (1.07c. per lb.), f.o.b. Antwerp. Corrugated steel bars are £5 16s. 6d. per ton (1.28c. per lb.) and hot rolled hoops £6 15s. per ton (1.49c. per lb.), f.o.b. Antwerp. The sheet market is showing a tendency to advance with demand especially good for the heavier gages. Thomas sheets, 1/16-in. in thickness are quoted at about £6 17s. 6d. per ton (1.52c. per lb.), f.o.b. Antwerp.

### German Rod Mills Seek Far Eastern Orders

HAMBURG, GERMANY, July 21.—Some disagreement has developed in the German Wire Rod Syndicate as to the proper quotations to be made on business for Japan. For some time prices have been too high to secure orders and most of the Japanese buying has been done in the United States and Canada. No agreement has been reached and further consideration of

the question is expected at the next meeting in August. Meanwhile, merchants have begun offering wire rods for export at Hamburg and other centers at 2s. 6d. to 3s. 6d. (60c. to 85c.) per ton lower price than the official syndicate figure of £6 (\$29.16) per ton for large lots. As there are no makers in Germany at present who are not members of the syndicate and the St. Ingebert works in the Saar has its own export organization, it is believed that these rods offered at less than the market are coming from German mills seeking to prevent total loss of their Far Eastern markets. As wire rods are sold f.o.b. Antwerp, it is difficult to trace the origin of a particular shipment. It seems to be expected that the syndicate will reduce all prices.

### German Mill to Roll Aluminum on Steel Sheets

The Eisen und Stahlwerke Hoesch Actiengesellschaft, Dortmund, Germany, according to Trade Commissioner James E. Wallis, Berlin, is reported engaged upon the construction of a new plating plant and rolling mill on its property, Stockheide, in the Ruhr. In this new mill it is planned that aluminum, and later other metals, will be rolled on ordinary black steel sheets by a special, patented process, the invention of an engineer of the Wickeder Iron & Steel Works. It is expected that this new aluminum plate will have a decided effect upon the present tin plate industry. Machinery for this new plant is being made by the Krupp Works.

The development of this new "plate" by the Hoesch company is the more significant when it is recalled that this company, since its amalgamation with the Wolf, Netter & Jacoby Co., Berlin, now produces the largest tonnage of tin plate of any German works engaged in the manufacture of this product.

### German Open-Hearth Extra Causes Output Decline

HAMBURG, GERMANY, July 21.—The steel ingot production in the first half of 1928 of 7,914,599 metric tons was only slightly less than the 7,952,370 tons produced in the first half of 1927. Output of Thomas steel, however, increased, and open-hearth steel production showed a corresponding decline. Of the total for the first half of this year, 4,086,741 tons was basic and acid open-hearth grade, which was 291,645 tons less than the total in the same period of last year. At the same time the output of Thomas grade was 3,586,414 tons, which was 237,849 tons more than in the previous year. This shift in output is noteworthy as from 1921 to 1927 open-hearth output has been constantly increasing and Thomas steel production declining.

The decline in open-hearth is explained, at least in part, by the recent

increase in the extra for open-hearth steel from 3 m. to 5 m. (70c. to \$1.20) per metric ton and the further advance in January to 8 m. (\$1.90) per ton. The latest increase brought the cost to a level that was not interesting

to consumers. In consequence of this reduction in demand for open-hearth steel and the recent lower prices of steel scrap, it is believed that mills will reduce the extra to the former level of 5 m. (\$1.20) per ton.

## New Extras for Special Analysis Steels

### Charges from \$1 to \$5 a Ton to Be Imposed for Carbon, Manganese, Silicon, Sulphur, Phosphorus, Etc.

THE report of a committee of steel manufacturers, of which Charles O. Hadly, vice-president in charge of sales Alan Wood Iron & Steel Co., Philadelphia, was chairman, covering the costs of manufacturing carbon steel billets, published in THE IRON AGE, Oct. 14, 1926, and presented at the fall, 1926, meeting of the American Iron and Steel Institute, is the basis of a new list of extras for chemical composition covering all forms of finished and semi-finished steel. The new extras vary slightly in some respects from the findings of the Hadly committee, but essentially they adhere closely to the facts disclosed by the cost studies of that committee.

The committee, using basic open-hearth steel of 0.10 per cent to and including 0.20 per cent carbon as a base, found the average cost of producing steel of 0.21 per cent to 0.50 per cent carbon was \$1 a ton above base; for steel of 0.51 per cent to 0.75 per cent carbon content, \$2 a ton above base; for 0.76 per cent to 0.95 per cent carbon steel, \$3 a ton, and for 0.96 per cent to 1.40 per cent carbon, \$5 a ton.

The actual list of extras imposes no charge for open-hearth steel running 0.10 per cent to 0.25 per cent carbon, a charge of \$1 a ton for carbon 0.26 per cent to 0.60 per cent, and of \$3 a ton for carbon of 0.61 per cent to 1.25 per cent. No charge is made in Bessemer steel running from 0.08 per cent to 0.25 per cent carbon. For open-hearth steel, when the maximum carbon range specified is 0.09 per cent, there is a charge of \$1 a ton and a like charge on Bessemer steel when the maximum range specified is 0.07 per cent. The Hadly committee found the extra cost of both open-hearth and Bessemer steel in the low carbon range was \$2 a ton.

#### Manganese Extras Up to \$5 a Ton

For manganese from 0.30 per cent to 0.90 per cent no charge is imposed; in the committee report, using a content of 0.30 per cent to 0.60 per cent as base, it was found there was an extra cost of \$2 a ton for 0.61 to 0.80 per cent manganese open-hearth or Bessemer steel, and of \$4 a ton for manganese content of 0.81 to 1.20 per cent. The card imposes a charge of \$2 a ton for 0.91 to 1.15 per cent manganese, of \$4 a ton for 1.15 to 1.35 per cent and of \$5 a ton for 1.36 to 1.50 per cent, but waives the charge for manganese of more than 1.15 per cent on

steel with a carbon content of under 0.20 per cent.

Silicon content extras also represent some modification of the cost findings of the Hadly committee and that also is true of sulphur content charges. For copper content up to 0.20 per cent minimum, the card calls for an extra of \$2 a ton, against the committee cost finding of \$3. The \$2 per ton charge, however, refers to bars, plates and shapes, and not to other products on which there is an existing extra for copper of \$3 a ton.

The new card follows:

EXTRAS FOR CHEMICAL COMPOSITION  
(The mean of the range agreed on between purchaser and manufacturer shall determine the extra.)

For Carbon		
Open-hearth	0.10 to 0.25 }	No extra
Bessemer	0.08 to 0.25 }	
	0.26 to 0.60 }	
	0.61 to 1.25 }	
When maximum of range specified is—		
Open-hearth	0.09 }	5c. per 100 lb.
Bessemer	0.07 }	

For Manganese		
0.30 to 0.90		No extra
0.91 to 1.15		10c. per 100 lb.
1.16 to 1.35		20c. per 100 lb.
1.36 to 1.50		25c. per 100 lb.

(For manganese content above 1.15 the above extras do not apply to steel with carbon under 0.20 maximum.)

For Silicon		
0.10 to 0.25		10c. per 100 lb.
0.26 to 0.50		20c. per 100 lb.

For Sulphur		
0.07 minimum to 0.10 minimum		10c. per 100 lb.

For Copper		
Up to 0.20 minimum		10c. per 100 lb.

For Phosphorus		
(Not to apply on sheet bars.)		
0.04 minimum to 0.08 minimum		5c. per 100 lb.

(Extra for phosphorus content applies to open-hearth steel only.)

Extras for Physical Specifications  
When material is ordered to physical properties, the extras for the required chemical contents shall apply. Orders specifying both physical properties and carbon contents will not be accepted. The following ranges of elements are standard:

When maximum of range specified is—

Carbon		
Up to .25 inclusive		5 points
.26 to .65 inclusive		10 points
.66 to 1.05 inclusive		15 points
1.06 and over		20 points

Manganese		
Up to .70 inclusive		20 points
.71 to 1.50 inclusive		30 points

Silicon		
Up to .20 inclusive		10 points
.21 to .30 inclusive		15 points
.31 to .50 inclusive		20 points

Specifications calling for closer ranges can only be adhered to at an extra cost unless a combination of orders is so arranged that all steel coming within the standard ranges can be applied.



# This Issue in Brief

Cuts controllable manufacturing expense almost 12 per cent by budgeting each department on basis of payroll. Foreman of each department in Stutz plant receives a weekly report of indirect expense (including indirect labor, shop supplies, etc.), which shows standard allowance per \$100 of payroll. Prizes are awarded each month for best records. One clerk handles entire system.—Page 334.

\* \* \*

You can not always widen your market by cutting your price. Many markets are restricted by factors other than price, so that price reductions produce no gain or a relatively insignificant gain in demand.—Page 339.

\* \* \*

Apathetic stockholders are a brake on efficient management. "I believe in the responsibility of stockholders," says Link-Belt Co. head. Unless stockholders take an interest in the affairs of the company the disadvantages of a hired management make themselves felt.—Page 340.

\* \* \*

Welds four additional stories to old six-story steel building. Cleveland fabricator inserts welded angles down the center of old hollow columns, joining old steel to new steel at five-foot intervals by means of welded plates. Cap plates welded to top of old columns serve as base for four-story H column.—Page 338.

\* \* \*

Plating is done automatically in Ford plant. Parts are hung on suspension frames, which are placed on conveyor hangers. A revolving arm picks the hangers off the conveyor and lifts hangers from tank to tank. Dipping is purely mechanical and is evenly timed.—Page 342.

\* \* \*

Plates small parts in wooden tumbling barrels. Ford immerses and revolves barrels in cadmium plating solution. A cathode is placed inside the barrel, coming in contact with the work as it revolves.—Page 342.

Iron-making capacity is declining. Blast furnace capacity was 49,605,720 tons on Jan. 1, 1928, and 51,379,400 tons one year earlier, a loss of 3.4 per cent.—Page 344.

\* \* \*

To remove prejudice and preference, place iron and steel freight charges on a mileage basis, Commerce Commission examiners recommend. Territory affected is the northeastern section of the country. New scale would cost railroads about \$2,000,000 a year, according to some estimates.—Page 345.

\* \* \*

Small manufacturers can save money by forming a cooperative tool shop, says engineer. Combination of a group of manufacturers would provide funds for buying modern equipment, engaging special tool-makers for each class of work, insuring quicker deliveries, and economies produced by steady operation of equipment.—Page 346.

\* \* \*

Abandons individual and group piece work rates in favor of bonus system based on standard hourly performance. Stutz calculates "standard" by taking time-study time plus 25 per cent for bonus. Bonus is paid for beating the time-study time.—Page 337.

\* \* \*

Almost every industry will benefit directly by Jones-White law, fostering American merchant marine, says shipbuilder. Shipyards buy from practically every industry. Material bills for each big ship run over \$7,000,000, representing about half the total cost.—Page 343.

\* \* \*

Industrial production has increased about 8 per cent in last five years while factory employment has declined and wages increased. Economic progress is indicated by higher output and higher wages per worker.—Page 356.

Foreman is called to account when his total indirect departmental expenses show up "in the red." Automobile manufacturer gives each foreman a weekly record of his expenses as compared with predetermined standards. Explanations gathered each week by the comptroller are submitted to the management each month.—Page 335.

\* \* \*

"Fixed buying fund" idea is a fallacy, says head of big corporation. It is wrong to assume that the public has so much to spend and that the fight is for the buyer's extra dollar. If you can create a new demand, the necessary buying power seems to be there.—Page 340.

\* \* \*

If the operators beat the standard the foreman's record is credited. But if performance is below standard, losses are charged against the departmental budget. Thus the foreman sees that all his operators make as high a daily rate as possible, in Indiana automotive plant.—Page 337.

\* \* \*

"Unemployment" is largely imaginary, Labor Federation statistics indicate. Even in flush times, statistics show that 7 to 8 per cent of workers are idle, and figures gathered in twenty-four large cities show that union laborers in all industries except building trades were 93 per cent employed in June.—Page 354.

\* \* \*

Not many industries can adopt mass production methods profitably. And there are definite limits to production even in those industries that lend themselves to mass output, says Charles Piez. "The economies from large-scale output are a constant temptation to increase production first and worry about sales afterward." Selling cost on the surplus oftentimes outweighs heavily the saving in manufacturing cost.—Page 339.

A. I. FINDLEY  
Editor

# THE IRON AGE

W. W. MACON  
Managing Editor

ESTABLISHED 1855

## A Union View of Unemployment

A LARGE part of the space in the August issue of the *American Federationist*, the well-edited magazine of the American Federation of Labor, is given over to the discussion of unemployment—whether there is such a thing, and if so what are the remedies. The main impression left by these articles is that in general, union labor is not suffering from any shortage of work to do.

One article, using a statistical analysis of the United States census of manufactures, attacks the fundamental question, "When does unemployment begin?" or, stated another way, "How many people are out of work during periods of general prosperity?" This census gives the number of workers employed in about 350 industries for each month of the year. Selecting the highest figure for each industry during the year, and adding these together, gives a total which is supposed to represent the number of workers in those industries. Subtracting from this total the total number actually at work in a given month, gives the number of unemployed in that month. Averaging the derived percentages, month by month, gives the following unemployment: For 1914, 8.8 per cent; for 1919, 11.9 per cent; for 1921, 13.2 per cent; for 1923, 6.6 per cent; for 1925, 7.9 per cent. The author concludes that unless more than 7 or 8 per cent of the available workers are out of work, a state of "unemployment" can hardly be said to exist.

On the very next page is an analysis of unemployment in trade unions in twenty-four of the large cities during 1928. The totals have been steadily decreasing since January, and in June the total unemployed in all trades was 11 per cent. Segregating the building trades, it is found that their unemployment averages 22 per cent, while for all other trades the unemployment is 7 per cent. We know that the total of construction contracts is breaking all previous records, consequently there must be (generally speaking) work for those in the building trades who really seek it. And by their own figures, union laborers in other urban trades are employed to an almost unprecedented extent.

By other articles in this same magazine one is reminded that there are certain sore spots in the labor market. Not to mention the coal industry, an analysis of conditions shows that 29 per cent of the unionized workers in Philadelphia were unemployed during some part of March and April. The corresponding figure for 1927 was 19 per cent. Causes for this situation as seen by local union officials are various. Most believe that it is a normal seasonal fluctuation, or results from normal turnover; a contributing factor is the "general business depression caused by over-production, which

in turn is caused by speeding up and introduction of labor-saving machinery." (This, by the way, is a normal, continuing factor.) Changes in technique, style, non-union competition, migration of industry, politics, strikes, the Eighteenth Amendment, the failure of the Naval expansion bill—such causes for unemployment, put forward in all seriousness by men close to the workers, indicate how complicated the problem really is.

An interesting story of how the city of Wilmington, Del., scotched alarmist reports of unemployment appears on another page of the *Federationist*. In the spring the local press and pulpit were deploring the "tens of thousands" of unemployed "tramping the streets vainly in search of work." The whole city (with the exception of the Chamber of Commerce's publicity bureau) was depressed. Then Mayor Forrest, at the behest of several civic organizations, established an employment bureau, which has had the active cooperation of the local industries. While hundreds of men have been placed, "the report of thousands being unemployed has been proved to be incorrect. Talk of unemployment makes for more unemployment. Statistics don't make jobs, but Wilmington today is talking 'employment.'"

Such evidence certainly does not support alarmist reports about suffering among the wage earners, if such reports were ever given serious attention. It is well known that the representative labor unionist is constantly driving for higher wages and shorter hours, and is seldom if ever content with existing conditions. Consequently the reports in his official magazine can hardly be expected to be colored with roseate hues. Yet it seems that urban workers (except such as bricklayers and plumbers) are employed to nearly a record extent; that the causes of unemployment in certain exceptional centers are so various that they seem to be largely local manifestations, and finally that some "unemployment" may be found to be mythical, when a real search for idle workers is made.

## Coal Miners and Economic Law

REPORTS from such conferences as officials of the United Mine Workers of America have been able to get with coal producers in the hope of making a fresh working agreement only confirm what has been plain to some minds, that operation of certain mines on a union basis and of others as non-union or open shop is futile. While the United Mine Workers have abandoned the so-called Jacksonville wage scale as a basis of negotiation, they still cling to the idea that the operators in Ohio, Indiana and Illinois (there have



been no conferences in central or western Pennsylvania) should be willing to pay a higher scale than now rules in the open shop districts.

The conferences between Ohio and Illinois operators, and the district executives of the miners' union, have failed of results because the operators wanted a scale that would be in line with existing wages in the fields with which they are in direct competition. On the other hand the union leaders contended that if they accepted the operators' suggestion, it would mean in turn a reduction in the open shop rates and a wage situation no different from what hitherto has existed. It is a little surprising that the union leaders are so concerned as to the effect the scale at which they will permit their members to work will have upon wages in open shop districts. If, they argue, they accepted the operators' proposal of \$5 a day for day labor in the Illinois mines, Kentucky operators would at once cut their scales enough to retain markets they have taken from Illinois operators. But why not reason that such action by the Kentucky producers would lead to discontent among their men and thus pave the way for unionization?

Is not this position of the union negotiators a practical admission that the United Mine Workers must muster much more numerical strength in the industry as a whole before they can enforce their demands upon any considerable part of it? The union has reached its present state of weakness by concentrating all its effort on wresting from soft coal operators a high and constantly mounting scale of wages. Now that it is shut up to a wage fixed by the public demand for coal, it finds economic law sitting on the other side of the conference table—a negotiator whose measure up to this time it has never thought it necessary to take.

### Market Study a Prime Need.

**M**ASS production is an overworked term. Foreign visitors who have studied American industry commonly ascribe our prosperity to methods of mass manufacture. They are impressed by the spectacular, as exemplified by our automobile plants, but fail to see the whole picture.

The fact that relatively few businesses lend themselves to mass production is pointed out by Charles Piez, chairman Link-Belt Company, in an interview elsewhere in this issue. Much engineering work is designed and built to meet special requirements. Mass products enter only in the form of certain standard parts. The whole building industry, one of our major activities, is mainly based on contract work in which mass methods of operation play a minor role. Mass goods like structural steel, lumber, brick, tile and radiators are used in construction, but the building operation itself still consists of the execution of special plans and specifications.

The relation of mass production to market expansion is also frequently misunderstood. While the automobile industry has been able to reduce prices and increase sales by expanding output, that principle does not apply in fields with limited markets.

Lower prices would have little effect on the consumption of coal, beef or flour, but excessive production would be, and in the bituminous coal industry has been, disastrous. Outside of the mass production field the idea of increasing consumption by cutting

prices is illusive. A price difference of a few hundred dollars up or down will not raise or lower the demand for electric traveling cranes. Cranes are bought because they are wanted for a specific purpose. If one crane is needed in a plant no price inducement will lead to the purchase of two.

Mr. Piez has shown the danger of sweeping generalizations about our complex industrial organism. He has focused attention, moreover, on the importance of market research. Intelligent selling is the great need of the times. One must know his field and know it well before he can sell to advantage. Thorough study of markets will lead the way to the most effective and economical sales policy.

### Industries Growing Into Maturity

**I**T is not fanciful to consider industries as passing through stages corresponding with the development of the individual human being, having infancy, adolescence, maturity and then further usefulness. Some difficult present problems in industry have light shed upon them by this comparison. We shall refer in particular to the steel industry, the automobile industry and the railroads.

In all three there has been and is regret that they do not "grow" as they used to. What does the human do? He "grows" in stature for a couple of decades, then reaching a so-called "maturity," but for decades afterward he grows in usefulness as the lives of many leaders in all lines of activity have testified.

It can be said that steel making has reached maturity, but only in the sense of its having attained a large tonnage. Does the consumer want weight in bridges, in automobiles, in airplanes? In the last five years steel tonnage has gained only in approximate proportion to the increase in population. The steel industry has reached a maturity by rapid growth in stature, but its usefulness is marked for continued and great increase by steel becoming more serviceable, pound for pound, as the years pass. Then it behooves producers to act as those having attained maturity, to put aside adolescent thoughts of physical growth and adopt the thoughts of maturity looking to growth in service, by making steel more adaptable and useful rather than by making more tonnage than is needed.

The automobile industry has reached a similar "maturity." The largest production, cars and trucks in the United States and Canada, in twelve consecutive months was the production in the twelve months through May, 1926. But the automobile increases in usefulness, in service rendered, and will continue to do so. Earnings reports of automobile companies show that the producers have an eye to profit rather than volume, as the industry is not in line for producing at much more than one-half its "capacity." The makers impress the public with their improvements in quality and appearance, in which they have an advantage over the steel producers. Eventually of course there will be less in this point.

Freight ton-mileage on the railroads used to double quite regularly every dozen years. Lately there has been no marked tendency for it to increase. Railroad-ing is not going down hill; it has simply reached a maturity in stature. There are new forms of transportation, by water and motor truck, which are having

their growth now. The railroads have their place. There is a large amount of transportation service which they are best fitted to render. The railroads are growing in efficiency. The fact that they do not buy many new freight cars does not show that they are going backward. American Railway Association reports show 96,753 freight cars installed in 1926 and 103,863 retired; in 1927, 71,040 installed and 91,435 retired, and in the first half of this year 28,651 installed and 42,867 retired, indicating a net decrease in number of cars in service of 41,721. The actual total in service was reported at 2,347,275 for Dec. 31, 1925, and 2,300,595 for June 30, 1928, making 46,680 decrease; but total capacity increased one-tenth of 1 per cent and average capacity per car from 44.77 net tons to 45.72 net tons.

Steel making, automobile production and railroad-ing, have grown up in stature but have long lives of increasing usefulness before them. Their functioning in maturity must differ from that of adolescence and they must come to a full realization of the fact.

### Production, Employment and Wages

**I**N the Federal Reserve Bulletin are comprehensive statistics in succinct form of production, employment, factory payrolls and other things in the form of index numbers beginning with 1919 and running through May of this year. There is opportunity for a study of relationships showing that industrial production has increased in the last three years, also this year, that factory employment has decreased and that payrolls have decreased less, indicating larger earnings per man.

Index numbers for the three items are given below. For industrial production the base, 100, is the 1923-4-5 average. For the other two items 1919 is taken as base.

Index Numbers			
	Industrial Production	Factory Employment	Factory Payrolls
1919.....	83	100	100
1920.....	87	103	124
1921.....	67	82	84
1922.....	85	90	89
1923.....	101	104	113
1924.....	95	95	104
1925.....	104	95	107
1926.....	108	96	109
1927.....	106	92	105
1928			
January ...	106	88	98
February ..	110	89	104
March .....	109	90	105
April .....	109	89	103
May .....	109	89	104

Considering industrial production as a separate item, we see a large increase in 1923. The increase over 1919 and 1920, when there seemed to be so much activity, and goods appeared to be scarce, was 19 per cent, marking the difference between inefficiency and shirking right after the war and reasonable efficiency after there had been a spell of hard times. Then we see further and fairly consistent gains up to and including this year; but the gain in five years has been only about 8 per cent, approximately the population gain.

It has been made clear in previous discussions of production and employment in *THE IRON AGE* that statistics showing the release of workers from indus-

tries whose activities are studied do not represent corresponding increases in unemployment; for workers go into new forms of employment. Unfortunately it is impossible even to estimate closely how nearly a balance is struck. The comparison between industrial production and factory employment is useful chiefly as an index of increasing efficiency in production methods. An index is obtained by dividing industrial production by factory employment, making 83 for 1919, 97 for 1923 and 122 for the first five months of this year, a remarkable progression indeed.

As to wages paid, an index is obtained by dividing factory payrolls by factory employment, making 100 for 1919, 109 for 1923 and 116 for this year, which is likewise a favorable progression.

All the figures are gratifying, as showing economic progress along sound lines. There is going to be much talk in the next few months about unemployment, with vague references to legislation. Talkers should be pinned down to actualities such as are indicated by these figures. Factories cannot be forced to produce more, or to employ more men in producing what they do. If politicians can bring about new forms of activity and patrons for them, let them go to it. If anything is needed it is that.

## CORRESPONDENCE

### Marking Ingots for Identification When Rolled Into Billets

*To the Editor:*—It will be found an impossible task to identify steel after rolling, by any paint or crayon marking prior to cogging or blooming, for two very definite reasons:—reduction of area and oxidation. Granting that you found it possible to secure a paint or crayon which would survive the furnace heat, you would find the marks distorted beyond recognition by the process of reduction.

Taking a 6-in. square ingot of 300 lb. weight and reducing it to a 2-in. square billet, the proportions will be as follows:

A 6-in. square x 28-in. or 300-lb. ingot will give a surface area on four sides of 672 sq. in. The same ingot reduced to 2 in. square gives a length of 22 ft. and 2112 sq. in. surface area. The comparison is 672 sq. in. to 2112 sq. in., or over three times the original area, which proves that the surplus area is secured by the metal working out from the interior during rolling.

Oxidation in the form of scale formation on commercial steels at normal temperatures of furnace heating will "shuck" off a paint or crayon mark to its practical extinction. Saw-marks and any form of nicking are prohibitive for the same reason, as reduction would distort them beyond recognition, as well as because of surface disfigurement and numerical limitation of this method.

The only definite and certain way of securing the desired result is to use a tab of special non-oxidizing metal containing all the desired information. These tabs would be marked as desired for any identification and one inserted in the sink head of each ingot while it is still soft after pouring. This method will survive the furnace heat and will also carry through undisturbed during the mill operations, permitting easy and sure recognition of each billet.

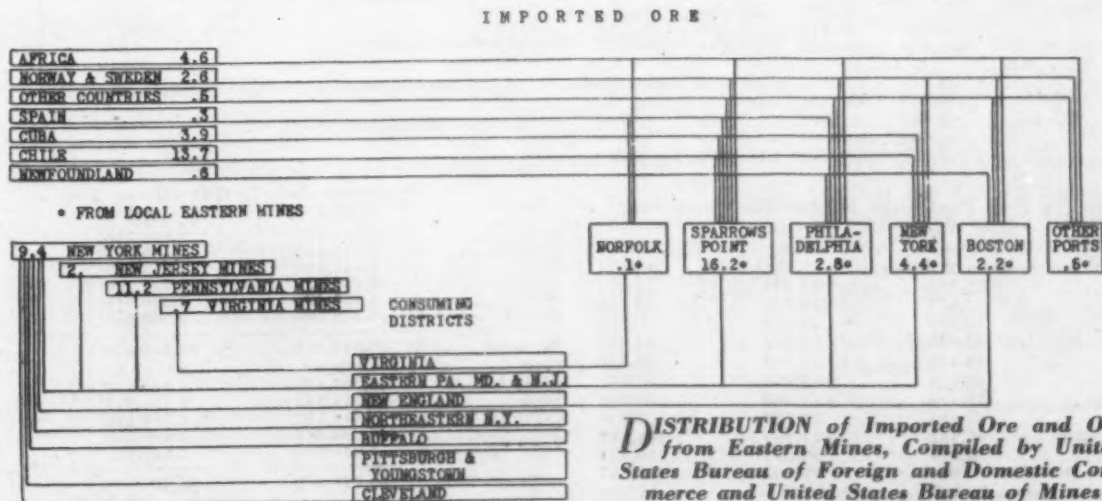
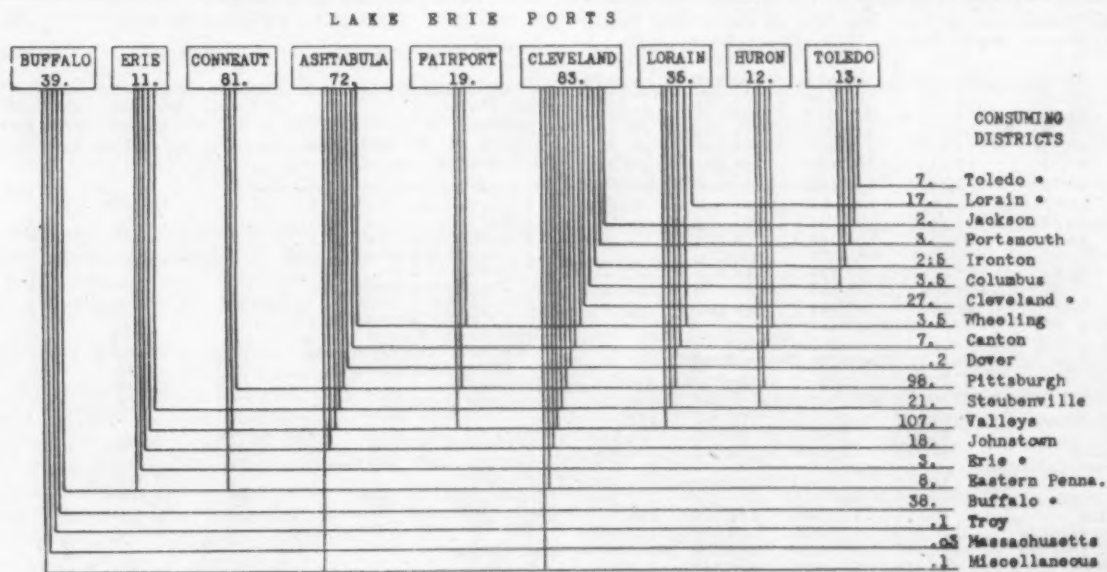
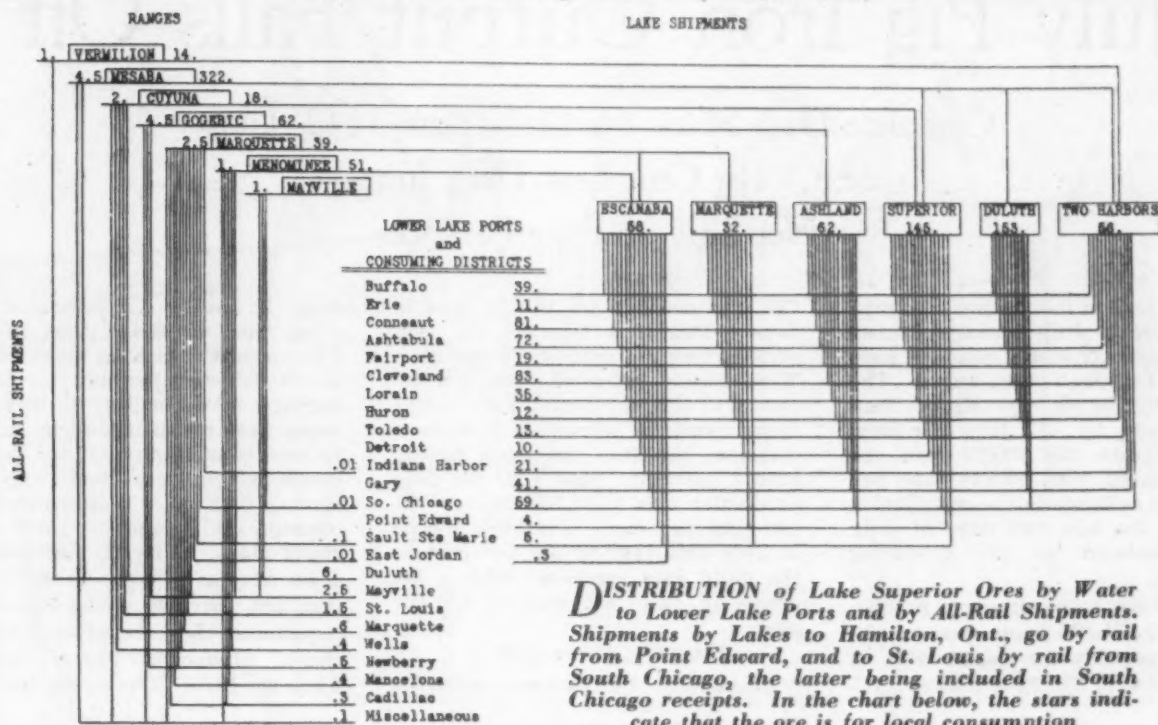
EDWARD J. CUBLER.

4504 Weitzel Avenue, Baltimore, July 22.



# Sources and Distribution of Ore in 1927

(Figures indicate tonnage in units of 100,000 tons)



# July Pig Iron Output Falls Off

Complete Data Show the Daily Rate 3642 Tons  
or 3.5 Per Cent Less Than June—  
Net Loss of Four Furnaces

ACTUAL data for the pig iron production in July reveal considerable variation from the estimate published in THE IRON AGE, Aug. 2. The actual July output was higher than the estimate by 257 tons per day. The July rate was 99,091 tons per day compared with 98,834 tons per day as the estimate in the compilation of which the last two days of July were calculated by the producing companies.

Total July coke pig iron production was 3,071,824 gross tons or 99,091 tons per day for the 31 days as contrasted with 3,082,000 tons or 102,-

733 tons per day for the 30 days in June. This is a decrease for July of 3642 tons per day, or 3.5 per cent. The estimate last week showed a decrease of 3.8 per cent. July is the third month in succession to show a decrease, the June recession having been 3 per cent. Last year the July production was 2,951,160 tons or 95,199 tons per day. Thus the decline in July this year of 3.5 per cent in the daily rate compares with a decrease in July last year of 7.5 per cent.

Capacity Active Aug. 1

There were 185 furnaces active on

Aug. 1, having an estimated operating rate of 98,445 tons per day. This contrasts with an operating rate of 100,855 tons per day for the 189 furnaces active on July 1. Seven furnaces were blown in during July and 11 were shut down. Of the furnaces blown in, two were Steel Corporation stacks, four were independent steel company units, and one was a merchant stack. The 11 furnaces shut down were as follows: Steel Corporation, five furnaces; independent steel companies, three furnaces, and merchant producers, three furnaces. Thus the Steel Corporation had a net

Daily Average Production of Coke Pig Iron in the United States  
by Months Since Jan. 1, 1924—Gross Tons

	1924	1925	1926	1927	1928
Jan. ....	97,384	108,720	106,974	100,123	92,573
Feb. ....	106,026	114,791	104,408	105,024	100,004
Mar. ....	111,809	114,975	111,032	112,366	103,215
Apr. ....	107,781	108,632	115,004	114,074	106,183
May ....	84,358	94,542	112,304	109,385	105,931
June ....	67,541	89,115	107,844	102,988	102,733
½ year....	95,794	105,039	109,660	107,351	101,763
July ....	57,577	85,936	103,978	95,199	99,091
Aug. ....	60,875	87,241	103,241	95,073	.....
Sept. ....	68,442	90,873	104,543	92,498	.....
Oct. ....	79,907	97,528	107,553	89,810	.....
Nov. ....	83,656	100,767	107,890	88,279	.....
Dec. ....	95,539	104,853	99,712	86,960	.....
Year ....	85,075	99,735	107,043	99,266	.....

Pig Iron Production by Districts, Gross Tons

	July (31 days)	June (30 days)	May (31 days)	April (30 days)
New York and Mass. ....	192,126	199,045	212,333	205,556
Lehigh Valley .....	64,921	60,640	77,195	81,140
Schuylkill Valley .....	53,855	52,434	53,162	60,062
Lower Susq. and Lebanon Valleys .....	30,079	29,207	32,019	31,522
Pittsburgh district .....	586,923	606,223	700,880	663,784
Shenango Valley .....	88,366	101,543	114,779	100,073
Western Pennsylvania .....	120,389	117,833	126,790	116,405
Maryland, Va. and Ky....	111,741	116,691	100,508	102,678
Wheeling district .....	154,636	145,717	124,948	115,284
Mahoning Valley .....	287,688	291,174	309,842	310,227
Central and North'n Ohio .....	379,277	349,952	357,900	336,200
Southern Ohio .....	44,339	40,810	26,380	25,548
Illinois and Indiana .....	636,961	635,201	694,636	693,271
Mich., Minn., Mo., Wis., Colo. and Utah.....	122,875	127,085	137,987	134,163
Alabama .....	189,383	200,643	207,045	199,487
Tennessee .....	8,265	7,802	7,452	10,104
Total .....	3,071,824	3,082,000	3,283,856	3,185,504

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works Iron	Merchant Iron*	Total
July, 1927.....	69,778	25,421	95,199
August .....	71,413	23,660	95,073
September .....	69,673	22,825	92,498
October .....	66,991	22,819	89,810
November .....	64,600	23,679	88,279
December .....	64,118	22,742	86,960
January, 1928.....	69,520	23,053	92,573
February .....	78,444	21,560	100,004
March .....	83,489	19,726	103,215
April .....	85,183	21,000	106,183
May .....	85,576	20,355	105,931
June .....	81,630	21,103	102,733
July .....	79,513	19,578	99,091

\*Includes pig iron made for the market by steel companies.

Coke Furnaces in Blast

	Aug. 1		July 1	
	Number in Blast	Capacity per Day	Number in Blast	Capacity per Day
<b>Furnaces</b>				
<b>New York:</b>				
Buffalo .....	9	5,000	11	5,580
Other N. Y. and Mass....	2	825	2	800
New Jersey .....	0	.....	0	.....
<b>Pennsylvania:</b>				
Lehigh Valley .....	6	2,460*	5	1,930*
Schuylkill Valley .....	4	1,730	4	1,750
Susquehanna Valley .....	2	910	2	975
Ferromanganese .....	0	.....	0	.....
Lebanon Valley .....	0	.....	0	.....
Ferromanganese .....	1	60	1	80
Pittsburgh District .....	30	18,600	31	19,485
Ferromanganese .....	3	465	3	500
Shenango Valley .....	5	2,750	6	3,300
Western Pennsylvania ..	7	3,660	6	3,530
Ferromanganese .....	2	370	2	390
Maryland .....	5	2,610	5	2,600
Wheeling District .....	8	4,970	8	4,860
<b>Ohio:</b>				
Mahoning Valley .....	16	9,250	17	9,700
Central and Northern....	20	12,340	20	12,300
Southern .....	4	1,410	4	1,360
Illinois and Indiana .....	29	19,900	29	19,780
Mich., Wis. and Minn....	5	2,150	6	2,665
Colo., Mo. and Utah .....	4	1,650	4	1,575
<b>The South:</b>				
Virginia .....	1	150	1	230
Ferromanganese .....	1	85	1	80
Kentucky .....	2	725	2	725
Alabama .....	16	6,030	16	6,320
Ferromanganese .....	1	80	1	80
Tennessee .....	2	265	2	260
<b>Total .....</b>	<b>185</b>	<b>98,445</b>	<b>189</b>	<b>100,855</b>

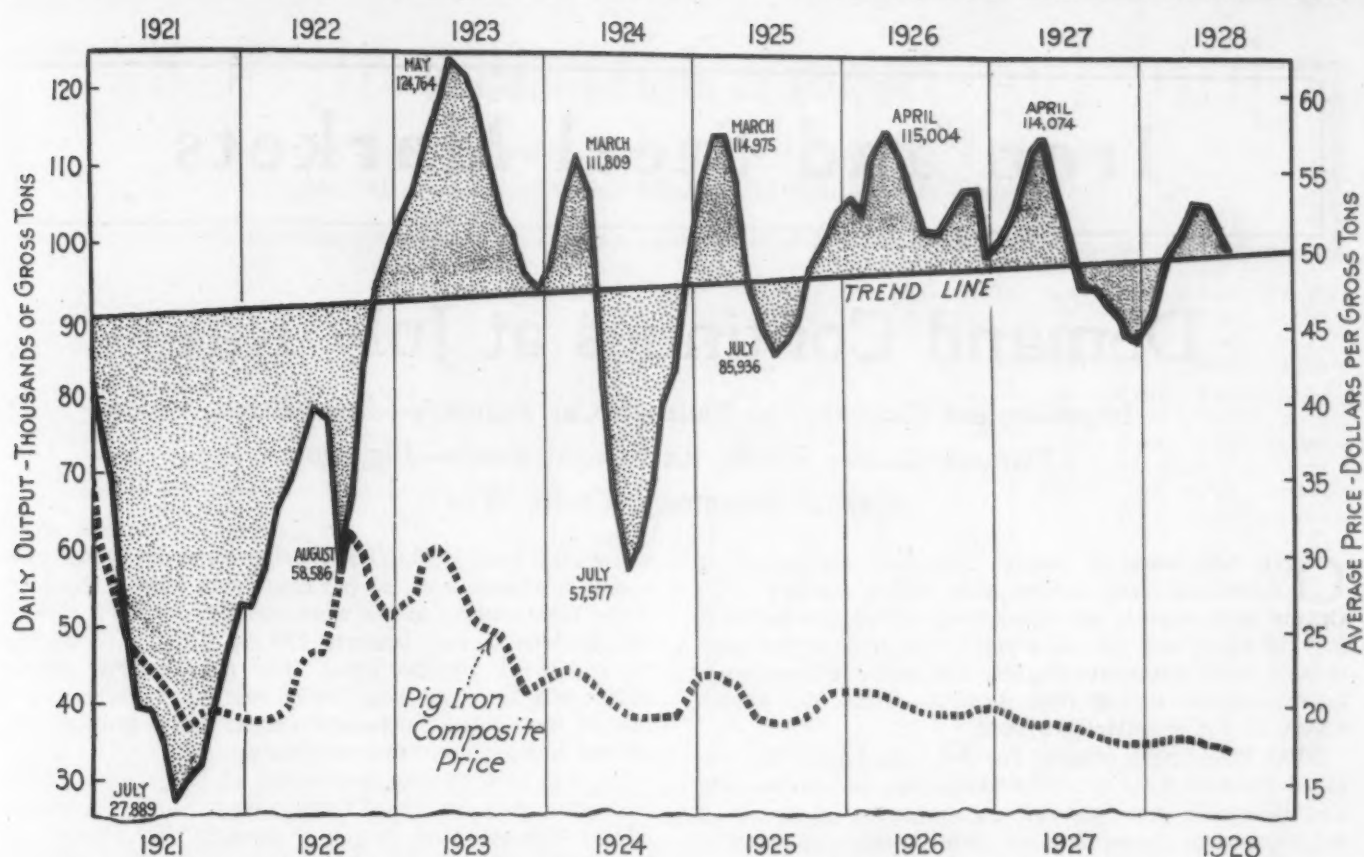
\*Includes spiegeleisen.

Production of Coke Pig Iron in United States by Months,  
Beginning Jan. 1, 1926—Gross Tons

	1926	1927	1928
Jan. ....	3,316,201	3,103,820	2,869,761
Feb. ....	2,923,415	2,940,679	2,900,126
Mar. ....	3,441,986	3,483,362	3,199,674
Apr. ....	3,450,122	3,422,226	3,185,504
May ....	3,481,428	3,390,940	3,283,856
June ....	3,235,309	3,089,651	3,082,000
½ year.....	19,848,461	19,430,678	18,520,921
July .....	3,223,338	2,951,160	3,071,824
Aug. ....	3,200,479	2,947,276	.....
Sept. ....	3,136,293	2,774,949	.....
Oct. ....	3,334,132	2,784,112	.....
Nov. ....	3,236,707	2,648,376	.....
Dec. ....	3,091,060	2,695,755	.....
<b>Year* .....</b>	<b>39,070,470</b>	<b>36,232,306</b>	<b>.....</b>

\*These totals do not include charcoal pig iron. The 1927 production of this iron was 164,569 tons.





Daily Pig Iron Output in July Was About 3.5 Per Cent Less Than in June; Composite Price Decreases Slightly  
Inclined line represents the gradually increasing theoretical needs of the country, ascertained by a balancing of the ups and downs in production. It shows an average yearly increase in consumption of about 415,000 tons

loss of three furnaces for the month, independent steel companies a net gain of one furnace, and merchant companies a net loss of two furnaces.

#### Steel and Merchant Iron

Steel-making iron in July was made at the rate of 79,513 tons per day, which was about 80 per cent of the total. In June the 81,630 tons per day of steel-making iron was also about 80 per cent of the total daily rate for the month. Merchant iron was, of course, about 20 per cent in each case. In July, 1927, the merchant iron was nearly 27 per cent of the total daily rate.

#### Possibly Active Furnaces Reduced

The Carbon furnace in the Lehigh Valley, the Tod furnace of the Youngstown Sheet & Tube Co. in the Mahoning Valley, and one Iroquois stack of the Youngstown Sheet & Tube Co. in the Chicago district have been abandoned during the last month and will be dismantled. This reduces the number of possibly active blast furnaces in the United States from 342 to 339.

#### Furnaces Blown In and Out

During July the following furnaces were blown in: One Bethlehem stack of the Bethlehem Steel Co. in the

Lehigh Valley; one Sparrows Point furnace of the Bethlehem Steel Co. in Maryland; one Donora furnace of the American Steel & Wire Co.; one Carrie furnace of the Carnegie Steel Co., and one Eliza stack of the Jones & Laughlin Steel Corporation, in the Pittsburgh district; the Colonial furnace in western Pennsylvania, and one Indiana Harbor furnace of the Youngstown Sheet & Tube Co. in the Chicago district.

Furnaces blown out during the month were as follows: One Susquehanna stack of the Hanna Furnace Co. and the Niagara furnace in the Buffalo district; one Sparrows Point stack of the Bethlehem Steel Co. in Maryland; one Carrie, one Clairton and one Edgar Thomson furnace of the Carnegie Steel Co., and one Midland furnace of the Pittsburgh Crucible Steel Co. in the Pittsburgh district; one Farrell furnace of the Carnegie Steel Co. in the Shenango Valley; one Hubbard stack of the Youngstown Sheet & Tube Co. in the Mahoning Valley; one Gary furnace of the Illinois Steel Co. in the Chicago district, and one Ford stack in Michigan.

#### Another New Record in Ferromanganese

At 32,909 tons the July output of ferromanganese was again the largest since separate records have been kept, surpassing the 32,088 tons made in June.

Production of Steel Companies for Own Use—Gross Tons

	Total Iron Spiegel and Ferro		Spiegeleisen and Ferromanganese*			
	1927	1928	1927		1928	
			Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan. ....	2,343,881	2,155,133	31,844	7,486	22,298	†....
Feb. ....	2,256,651	2,274,880	24,560	7,045	19,320	†....
Mar. ....	2,675,417	2,583,158	27,834	7,650	27,912	†....
Apr. ....	2,637,919	2,555,500	24,735	12,907	18,405	†....
May ....	2,619,078	2,652,872	28,734	9,788	29,940	†....
June ....	2,343,409	2,448,905	29,232	10,535	32,088	†....
½ year ....	14,876,355	14,675,448	166,939	55,411	149,963	†....
July ....	2,163,101	2,464,896	26,394	9,350	32,909	†....
Aug. ....	2,213,815	.....	21,279	9,104	.....	.....
Sept. ....	2,090,200	.....	20,675	6,037	.....	.....
Oct. ....	2,076,722	.....	17,710	6,129	.....	.....
Nov. ....	1,938,043	.....	17,851	6,521	.....	.....
Dec. ....	1,987,652	.....	20,992	6,816	.....	.....
Year ....	27,345,888	.....	291,840	99,368	.....	.....

\*Includes output of merchant furnaces.  
†Data not available for publication.

# Iron and Steel Markets

## Demand Continues at July Rate

Improvement Extended to Railroad Car Industry—Steel Prices

Firmer—Extras Likely for Special Steels—Pig Iron

Buying Movement Under Way

ONE full week of August continues the record of sustained steel consumption which marked July. Output was slightly curtailed by hot weather, particularly in sheet and tin plate mills, but this served only to hold back shipments slightly and without disturbance to consumers, seeing that demand, while for known needs, is not essentially urgent.

The steel ingot returns for July emphasize the unusual summer activity. The production of open-hearth and Bessemer steel showed an expansion of nearly 2 per cent over June, besides immediately following a record half-year output. It was 19 per cent greater than the production of July, 1927, and the increase over June this year compares with a falling off last year of more than 8 per cent, from June to July. The 3,811,573 gross tons turned out last month brought the seven months' total nearly 1,600,000 tons ahead of the like period of 1927.

The improvement has extended to the railroad car industry, which has taken contracts for 550 cars for the Pennsylvania Railroad and is now figuring on cars and underframes for the Great Northern, which will require 45,000 tons of steel.

The diversified sources of business are indicative of a notably healthy situation among most manufacturing lines using pig iron as well as steel, for pronounced activity in forward pig iron covering in several centers is one of the week's developments. In Chicago steel sales have not been exceeded by any appreciable margin since the last week of March, when operations were close to capacity.

One result is that prices are showing more firmness than in many weeks. In the heavy tonnage products (plates, shapes and bars), orders are small, so well are large consumers covered, but where they figure back to a Pittsburgh basis, they all seem to be done at 1.90c. a pound. On black sheets 2.65c., Pittsburgh, is more common and on a larger tonnage than recently, and the mills now are expected to seek an advance on fourth-quarter business. Makers of strips also are taking a notably firm price stand.

An imminent promulgation of new extras for special analysis steels, to apply where there are measurable production costs for providing particular contents of carbon, silicon, manganese or other elements, is an illustration of the efforts to get remunerative prices. Charges of \$1 to \$5 a ton are comprehended on both semi-finished and finished steel. The proposal comes closely after that limiting the discount for cash payments on sheets, strips and hoops to  $\frac{1}{2}$  per cent instead of 2 per cent.

Complete returns of pig iron production last month

show an output of 3,071,824 gross tons, or 99,091 tons a day, a recession of 3.5 per cent from June. On Aug. 1 the 185 furnaces active were making iron at a rate of 98,445 tons a day, against 189 on July 1 producing at a rate of 100,855 tons. The net changes among active stacks were two fewer merchant furnaces, a loss of three Steel Corporation units and a gain of one among independent steel companies.

A pig iron buying movement of large proportions is under way in the Central West. At Cleveland, 50,000 tons was sold on top of close to that amount in the previous week. Chicago sales in July were 150,000 tons and business so far this month has continued at a corresponding rate. The market also is more active in the East, the week's sales at New York totaling 20,000 tons. About 50,000 to 75,000 tons of Buffalo iron, being brought down by barge from Buffalo furnaces, will be stored at New Jersey tidewater points to be reshipped by rail during the fall and winter to nearby consumers.

Heavy melting steel has moved up 75c. a ton at Pittsburgh and 25c. a ton at Chicago. There has been no marked increase in demand, but supplies are scarcer because of the low prices which have been prevailing.

Fabricated structural steel demand still gives high promise. New projects appearing in the week call for 52,000 tons, including 11,000 tons for 98 barges for the Mississippi River Commission, 6300 tons for a railroad bridge over Newark Bay and five buildings in Chicago requiring 2000 to 2500 tons each. Bookings amounted to 22,500 tons.

Present commitments for tin plate are sufficient to insure practically full operation through all next month. The Pacific Coast is now to have a tin plate plant, the Columbia Steel Corporation announcing plans to erect mills of 50,000 tons annual capacity at Pittsburg, Cal.

Tonnage from the pipe mills is coming chiefly from the oil companies for line pipe. The Youngstown Sheet & Tube Co. will supply 25,000 tons for 165 miles of a 14-in. line from Amarillo, Tex., to Enid, Okla. One oil company is believed to have 450 miles, or over 100,000 tons, to buy, and a proposed Wyoming to Salt Lake project calls for 350 miles of 20 or 22-in. pipe.

A new set of railroad freight rates on iron and steel now before the Interstate Commerce Commission would establish a mileage basis as a way to remove "undue prejudice and undue preference." Freight charges into New England from Pittsburgh would be 10 per cent higher, the Chicago-St. Louis rate would be raised from 22c. to 26c., the Ohio short haul rates would be discarded and there would also be numerous reductions. Arguments on exceptions made meanwhile will be heard probably in late October or in November.



# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
No. 2 fdy., Philadelphia.....	\$20.26	\$20.26	\$20.26	\$20.76
No. 2, Valley furnace.....	16.50	16.50	16.75	17.50
No. 2, Southern, Cin'ti.....	19.19	19.19	19.19	20.94
No. 2, Birmingham.....	15.50	15.50	15.50	17.25
No. 2 foundry, Chicago*.....	17.50	17.50	17.50	19.50
Basic, del'd eastern Pa.....	19.00	19.00	19.00	20.00
Basic, Valley furnace.....	16.00	16.00	16.00	17.25
Valley Bessemer, del'd P'gh..	18.76	18.76	18.76	20.26
Malleable, Chicago*.....	17.50	17.50	17.50	19.50
Malleable, Valley.....	17.00	17.00	17.00	17.50
Gray forge, Pittsburgh.....	18.01	18.01	18.01	18.76
L. S. charcoal, Chicago.....	27.04	27.04	27.04	27.04
Ferromanganese, furnace.....	105.00	105.00	105.00	90.00

Rails, Billets, etc., Per Gross Ton:	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
O.-h. rails, heavy, at mill.....	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O.-h. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O.-h. sheet bars, P'gh.....	32.00	32.00	32.00	34.00
Forging billets, P'gh.....	38.00	38.00	38.00	39.00
O.-h. billets, Phila.....	37.30	37.30	37.30	38.30
Wire rods, Pittsburgh.....	42.00	42.00	42.00	43.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.....	1.90	1.85	1.85	1.80

Finished Iron and Steel,	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia.....	2.12	2.12	2.12	2.12
Iron bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh.....	1.90	1.85	1.85	1.80
Steel bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, New York.....	2.24	2.19	2.19	2.14
Tank plates, Pittsburgh.....	1.90	1.85	1.85	1.80
Tank plates, Chicago.....	2.00	2.00	2.00	2.00
Tank plates, New York.....	2.17 1/2	2.17 1/2	2.17 1/2	2.09
Beams, Pittsburgh.....	1.90	1.85	1.85	1.80
Beams, Chicago.....	2.00	2.00	2.00	2.00
Beams, New York.....	2.14 1/2	2.14 1/2	2.14 1/2	1.95
Steel hoops, Pittsburgh.....	2.20	2.20	2.20	2.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh....	2.65	2.60	2.65	3.00
Sheets, black, No. 24, Chicago				
dist. mill.....	2.75	2.75	2.75	3.10
Sheets, galv., No. 24, P'gh....	3.40	3.40	3.50	3.85
Sheets, galv., No. 24, Chicago				
dist. mill.....	3.60	3.60	3.60	3.95
Sheets, blue, 9 & 10, P'gh....	2.00	2.00	2.00	2.25
Sheets, blue, 9 & 10, Chicago				
dist. mill.....	2.10	2.10	2.10	2.35
Wire nails, Pittsburgh.....	2.55	2.55	2.55	2.55
Wire nails, Chicago dist. mill..	2.60	2.60	2.60	2.60
Plain wire, Pittsburgh.....	2.40	2.40	2.40	2.40
Plain wire, Chicago dist. mill..	2.45	2.45	2.45	2.45
Barbed wire, galv., Pittsburgh.	3.20	3.20	3.20	3.25
Barbed wire, galv., Chicago				
dist. mill.....	3.25	3.25	3.25	3.30
Tin plate, 100 lb. box, P'gh....	\$5.25	\$5.25	\$5.25	\$5.50

Old Material, Per Gross Ton:	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
Heavy melting steel, P'gh.....	\$15.00	\$14.25	\$14.00	\$15.25
Heavy melting steel, Phila....	13.00	13.00	13.00	13.50
Heavy melting steel, Ch'go....	12.75	12.50	12.25	12.50
Carwheels, Chicago.....	12.75	12.75	12.75	14.50
Carwheels, Philadelphia.....	15.50	15.50	15.50	15.00
No. 1 cast, Pittsburgh.....	14.25	14.25	14.25	15.00
No. 1 cast, Philadelphia.....	15.50	15.50	15.50	16.00
No. 1 cast, Ch'go (net ton)....	13.50	13.50	13.50	15.00
No. 1 RR. wrot., Phila.....	13.50	13.50	13.50	15.50
No. 1 RR. wrot., Ch'go (net)..	10.75	10.75	11.00	12.00

Coke, Connellsville, Per Net Ton at Oven:	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
Furnace coke, prompt.....	\$2.75	\$2.75	\$2.60	\$3.00
Foundry coke, prompt.....	3.75	3.75	3.75	4.00

Metals,	Aug. 7, 1928	July 31, 1928	July 10, 1928	Aug. 9, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York.....	14.75	14.75	14.75	13.50
Electrolytic copper, refinery..	14.50	14.50	14.50	13.12 1/2
Zinc, St. Louis.....	6.25	6.20	6.20	6.32 1/2
Zinc, New York.....	6.60	6.55	6.55	6.67 1/2
Lead, St. Louis.....	6.00	6.00	6.10	6.52 1/2
Lead, New York.....	6.20	6.20	6.20	6.80
Tin (Straits), New York.....	47.87 1/2	47.75	46.25	65.12 1/2
Antimony (Asiatic), N. Y.....	10.00	10.00	9.62 1/2	12.00

## Pittsburgh

### Tendency Toward Firmer Steel Prices as Mills Hold Recent Gain in Plant Engagement

PITTSBURGH, Aug. 7.—The steel industry is holding its recent gain in plant engagement, although it is probable that actual production has suffered somewhat from extremely hot weather. In point of specifications, the reports for the past week are quite as cheerful as those of the week before. Ingot production, on the basis of the units reported as active, still is fully 75 per cent, but considerable difficulty has been experienced in maintaining full crews in the sheet and tin mills on account of the heat, and it is probable that output of other classes of finishing mills has suffered from the same cause. This, however, merely means a slight backing up of orders and is not disturbing to either producers or consumers, as the demand, while constant, is not always urgent. More interesting than the fact that general business is running above normal for this time of year is the tendency of prices toward greater firmness.

While new business in bars, plates and shapes is limited by the fact that consumers generally are under cover for this quarter's requirements, the little that is coming out is finding sellers firm at 1.90c., base, Pittsburgh. A price of 2.65c., base, on black sheets is being named by more makers and on more tonnage than recently. Strip makers also are firmer in their prices. Preferential price treatment is more restricted. Indeed,

the disposition to make steel a more profitable commodity is gaining headway. There is not only the evidence of the reduction in the cash discount on sheets, strips, hoops and tin plate that producers have announced, but a list of chemical extras imposing a charge where there is a production cost, will be issued and will add to prices of all forms of semi-finished and finished products.

Scrap prices have advanced further

in this market; while there is some mill buying, the strength finds its chief explanation in nervousness among dealers who have gone short of the market and are alarmed by the very moderate offerings. There is little life to the pig iron market. In coke and coal, the condition still is that producers are seeking buyers rather than the reverse.

Pig Iron.—One sale of 500 tons of Bessemer iron is reported and scattering sales of this grade bring the total to about 1000 tons. There is no interest in basic iron and in foundry and malleable grades. Sales have been entirely of single carloads and orders have resulted more from active solicitation by sellers than from a pressing need on the part of melters. Steel foundries in this area still are running at under rather than above 50 per cent of capacity and engagement of close to 75 per cent of radiator and sanitary ware foundry capacity does not help pig iron sales much because operators are so well covered on their requirements. The movement on contracts is steady. Prices hold where they were a week ago. There are suggestions that less than \$16.50, Valley furnace, has been

done on No. 2 foundry, but they seem to be based on the fact that in some cases producers have not insisted on the full silicon differential for No. 2X grade. In view of the very limited demand, the silicon differentials of 50c. per half point of silicon are not being closely observed and 25c. is the usual demand. Most producers want as much for No. 3 and gray forge iron as for No. 2 foundry, but on the other hand have taken \$16.75 for No. 2X. There is still a quotation of \$16.75 for No. 2 grade. W. P. Snyder & Co. make the July average prices of basic and Bessemer iron from Valley furnaces \$16 and \$17, respectively, compared with \$15.43 and \$17 in June.

Prices per gross ton, f.o.b. Valley furnace:

Basic	\$16.00
Bessemer	17.00
Gray forge	\$16.25 to 16.50
No. 2 foundry	16.50 to 16.75
No. 3 foundry	16.25 to 16.50
Malleable	17.00
Low phos., copper free	26.50

Freight rate to Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—New business in ferromanganese, spiegeleisen and high grade ferrosilicon does not amount to much, as most users are under contract for the remainder of the year. As the steel industry is operating at a surprisingly high rate for this time of the year, specifications against ferroalloy contracts are above the seasonal average. Prices hold at recent levels.

**Semi-Finished Steel.**—A high rate of engagement of sheet and tin mills is reflected in specifications for sheet bars. Strip mill operations are down a little from what they were recently and this development has caused a corresponding letdown in the movement of billets and slabs. Prices are unchanged, with current shipments going at \$32, but with \$33 asked on new billet and slab business and also mentioned as the fourth quarter price of sheet bars. Buyers are meeting with no success in efforts to break \$42, base Pittsburgh, on wire rods.

**Bars, Plates and Shapes.**—The market is becoming more fully established at 1.90c., base Pittsburgh, on these products. It is the uniform quotation of mills here and rules on shipments

other than on contracts, which commonly are priced at 1.85c. Few buyers failed to secure full coverage for this quarter at 1.85c., and strictly new business does not reach very sizable proportions. Bar and shape specifications are coming along well. Plates are not doing as well as the others, but more than 12,000 tons is in sight in river barges and scows. On Aug. 17 bids will be opened at Memphis for 98 barges for the Mississippi River Commission, requiring 11,000 tons of plates and small shapes.

**Wire Products.**—Business is running a little behind that done at this time last year, but so far as prices are concerned there have been few periods in recent years when they were any more firmly maintained than they are now.

**Rails and Track Supplies.**—Specifications against contracts for spikes and other track supplies are somewhat heavier than they were recently. Not much new buying is being done. Light-section rails and small spikes still are dull.

**Tubular Goods.**—Fairly good demand is noticed for oil well pipe from the Seminole, Okla., field and from California, but it is for deep well drilling and runs heavier in seamless than in welded pipe. Standard-weight pipe is moving steadily for building and construction work. The chief prop to an average engagement of 70 per cent pipe-making capacity, however, is in line pipe. The Youngstown Sheet & Tube Co. recently took 25,000 tons of 14-in. pipe for a line to run from Amarillo, Tex., to Enid, Okla. Like other recent awards, this calls for early shipment. That company, also Spang, Chalfant & Co. and the National Tube Co. are busy on line pipe. The Texas Co. is reported to have placed with a Milwaukee fabricator 450 miles of 24-in. pipe for a gas line; that diameter, weighing 87 lb. per ft., would mean over 100,000 tons. This company has not yet closed for an oil pipe line to run from western Texas to Port Arthur, calling for 20,000 to 25,000 tons of 4 to 12-in. pipe. A 350-mile gas line is being projected to run from Wyoming to Salt Lake City, but this is probably

some distance away from an award, since franchises have not yet been granted.

**Sheets.**—Since all sheet consuming industries are normally busy for this time of the year and some upturn is noted in the activities of the farm implement manufacturers, sheet specifications still are flowing in at a good rate and mill operations show no recession. Production is somewhat under the rate of mill engagement on account of the extreme heat, which has made difficult the maintenance of full crews. The market appears stronger on black sheets and efforts to establish a minimum of 2.65c., base Pittsburgh, are meeting with some success. On galvanized sheets, the range remains at 3.40c., to 3.50c., base, while blue annealed sheets, produced by the jobbing mill as distinct from the strip mill product, hold at 2c., base.

**Tin Plate.**—Production has suffered rather heavily from excessively hot weather and while all of the mills are in operation, a good many turns have been lost, owing to the inability of mill managers to obtain full crews. The American Sheet & Tin Plate Co., which has been working an extra turn on Saturdays to make up for production lost during the week, was unable to work this turn last Saturday on account of the heat. Present commitments are sufficient to insure practically full hot mill operations through all of next month.

**Cold-Finished Steel Bars and Shafting.**—Demand, as typified by specifications, is holding up well to the recent average. Automobile parts makers are ordering steadily on contracts, but not in excess of their actual requirements. The market is firm at 2.10c., base Pittsburgh, with an advance likely on fourth quarter business in view of the stronger tendency in hot-rolled bar prices.

**Hot-Rolled Flats.**—Besides the fact that specifications for strips are holding up well for the time of year, the market is featured by a steadier price situation. Makers generally want higher prices on fourth quarter tonnage and realize that price weakness at this juncture would defeat

## THE IRON AGE Composite Prices

### Finished Steel Aug. 7, 1928, 2.348c. a Lb.

One week ago	2.319c.
One month ago	2.326c.
One year ago	2.367c.
10-year pre-war average	1.689c.

\*Based on steel bars, beams, tank plates, wire, rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1928	2.364c.	Feb. 14	2.314c.	Jan. 3
1927	2.453c.	Jan. 4	2.293c.	Oct. 25
1926	2.453c.	Jan. 5	2.403c.	May 18
1925	2.560c.	Jan. 6	2.396c.	Aug. 18
1924	2.789c.	Jan. 15	2.460c.	Oct. 14
1923	2.824c.	Apr. 24	2.446c.	Jan. 2

### Pig Iron Aug. 7, 1928, \$17.04 a Gross Ton

One week ago	\$17.04
One month ago	17.09
One year ago	18.13
10-year pre-war average	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1928	\$17.75	Feb. 14	\$17.04	July 24
1927	19.71	Jan. 4	17.54	Nov. 1
1926	21.54	Jan. 5	19.46	July 13
1925	22.50	Jan. 13	18.96	July 7
1924	22.88	Feb. 26	19.21	Nov. 3
1923	30.86	Mar. 20	20.77	Nov. 20



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

### Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
Del'd Philadelphia.....	2.17c. to 2.22c.
Del'd New York.....	2.19c. to 2.24c.
Del'd Cleveland.....	2.04c. to 2.09c.
F.o.b. Cleveland.....	1.85c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

### Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c. to 2.15c.

### Rail Steel

F.o.b. mills east of Chicago district.....	1.75c.
F.o.b. Chicago Heights mill.....	1.85c.

### Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.10c. to 2.15c.
F.o.b. Coatesville.....	2.00c. to 2.05c.
F.o.b. Sparrows Point.....	2.00c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
Del'd New York.....	2.17½c. to 2.22½c.
C.i.f. Pacific ports.....	2.25c. to 2.30c.

## Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Bethlehem.....	2.00c. to 2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.01c. to 2.18c.
Del'd New York.....	2.14½c. to 2.19½c.
C.i.f. Pacific ports.....	2.35c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
Narrower than 3 in., P'gh.....	2.10c. to 2.20c.
From 3 in. to 6 in., P'gh.....	1.85c. to 2.00c.
6 in. and wider, P'gh.....	*1.75c. to 1.90c.
Narrower than 3 in., Chicago.....	2.30c.
From 3 to 6 in., Chicago.....	2.20c.
6 in. and wider, Chicago.....	2.00c.
Cotton ties, f.o.b. Atlantic and Gulf ports:	
Carlots per 45-lb. bundle.....	\$1.27
2000 bundle lots.....	1.25
Larger lots.....	1.23

\*Mills follow plate or sheet prices according to gage on wider than 12 in.

## Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills.....	2.10c.
Bars, f.o.b. Chicago.....	2.10c.
Bars, Cleveland.....	2.15c.
Shafting, ground, f.o.b. mill.....	*2.45c. to 2.90c.
Strips, 1 up to 3 tons, P'gh.....	2.90c. to 3.00c.
Strips, 1 up to 3 tons, Cleveland.....	2.90c.
Strips, 1 up to 3 tons, del'd Chicago.....	3.30c.
Strips, 1 up to 3 tons, Worcester.....	3.15c. to 3.30c.
Fender stock, Pittsburgh.....	4.10c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.55
Galvanized nails.....	4.55
Galvanized staples.....	3.25
Polished staples.....	5.90
Cement coated nails.....	2.55

### Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.40
Annealed fence wire.....	2.55
Spring wire.....	3.40
Gal'd wire, No. 9.....	3.00
Barbed wire, gal'd.....	3.20
Barbed wire, painted.....	2.95
Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.	

## Woven Wire Fence

### Base to Retailers Per Net Ton

F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

## Sheets

### Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. P'gh.....	2.00c. to 2.10c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.10c.
Nos. 9 and 10, del'd Cleveland.....	2.09c. to 2.19c.
Nos. 9 and 10, del'd Philadelphia.....	2.32c. to 2.42c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.20c.

### Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	2.60c. to 2.65c.
No. 24, f.o.b. Chicago dist. mill.....	2.75c.
No. 24, del'd Cleveland.....	2.74c. to 2.84c.
No. 24, del'd Philadelphia.....	2.97c. to 3.07c.
No. 24, f.o.b. Birmingham.....	2.90c.

### Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	3.85c. to 3.90c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.65c. to 3.70c.

### Galvanized

No. 24, f.o.b. Pittsburgh.....	3.40c. to 3.50c.
No. 24, f.o.b. Chicago dist. mill.....	3.60c.
No. 24, del'd Cleveland.....	3.54c. to 3.69c.
No. 24, del'd Philadelphia.....	3.72c. to 3.82c.
No. 24, f.o.b. Birmingham.....	3.65c. to 3.70c.

### Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	2.85c. to 2.90c.
No. 28, f.o.b. Chicago dist. mill.....	3.10c.

### Automobile Body Sheets

No. 20, f.o.b. Pittsburgh.....	4.00c.
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### Long Ternes

No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.
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## Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary.....	5.35

## Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating I.C. \$11.20	25-lb. coating I.C. \$16.70
15-lb. coating I.C. 14.00	30-lb. coating I.C. 17.75
20-lb. coating I.C. 15.30	40-lb. coating I.C. 19.85

## Alloy Steel Bars

(F.o.b. maker's mill)

Alloy Quality Bar Base, 2.65c.

S.A.E. Series Numbers	Alloy Differential	Net Price 100 Lb. Bars
2000 (¼% Nickel).....	0.25	\$2.90
2100 (1½% Nickel).....	0.55	3.20
2300 (3¼% Nickel).....	1.50	4.15
2500 (5% Nickel).....	2.25	4.90
3100 Nickel Chromium.....	0.55	3.20
3200 Nickel Chromium.....	1.35	4.00
3300 Nickel Chromium.....	3.80	6.45
3400 Nickel Chromium.....	3.20	5.85
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum).....	0.50	3.15
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum).....	0.70	3.35
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum, 1.25 to 1.75 Nickel).....	1.05	3.70
5100 Chromium Steel (0.60 to 0.90 Chromium).....	0.35	3.00
5100 Chromium Steel (0.80 to 1.10 Chromium).....	0.45	3.10
5100 Chromium Spring Steel.....	0.20	2.85
6100 Chromium Vanadium Bars.....	1.20	3.85
6100 Chromium Vanadium Spring Steel.....	0.95	3.60
9250 Silicon Manganese Spring Steel.....	0.25	2.90
Chromium Nickel Vanadium.....	1.50	4.15
Carbon Vanadium.....	0.95	3.60

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in., the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 down to and including 2½ in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

Slabs with sectional area of 16 in. or over carry the billet price; slabs with sectional area of 12 in. to 16 in. carry a \$5 extra above the billet price and slabs with a sectional area under 12 in. carry the bar price.

Band sizes are 40c. per 100 lb. higher.

## Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	24.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

### Base Per 100 Lb.

Spikes, ¾ in. and larger.....	\$2.80
Spikes, ½ in. and smaller.....	2.30
Spikes, boat and barge.....	3.00
Tie plates, steel.....	2.15
Angle bars.....	2.75
Track bolts, to steam railroads.....	\$3.80 to 4.00
Track bolts, to jobbers, all sizes, per 100 count.....	70 per cent off list

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

### Butt Weld

Inches	Steel Black	Galv.	Inches	Iron Black	Galv.
¼.....	45	19½	¼ to ½.....	+11	+39
½.....	51	25½	½.....	22	2
¾.....	56	42½	¾.....	28	11
1.....	60	48½	1 to 1½.....	30	13
1 to 3.....	62	50½			

### Lap Weld

2.....	55	43½	2.....	23	7
2½ to 6.....	59	47½	2½.....	26	11
7 and 8.....	56	43½	3 to 6.....	28	13
9 and 10.....	54	41½	7 to 12.....	26	11
11 and 12.....	53	40½			

### Butt Weld, extra strong, plain ends

¼.....	41	24½	¼ to ½.....	+19	+54
½.....	47	30½	½.....	21	17
¾.....	53	42½	¾.....	28	12
1.....	58	47½	1 to 1½.....	30	14
1 to 1½.....	60	49½			
2 to 3.....	61	50½			

### Lap Weld, extra strong, plain ends

2.....	53	42½	2.....	23	9
2½ to 4.....	57	46½	2½ to 4.....	29	15
4½ to 6.....	56	45½	4½ to 6.....	28	14
7 to 8.....	52	39½	7 to 8.....	21	7
9 and 10.....	45	32½	9 to 12.....	16	2
11 and 12.....	44	31½			

On carloads the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

## Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2½ in.....	27	1½ in.....	+18
2½ to 3 in.....	37	1½ to 1¾ in.....	+8
3 in.....	40	2 to 2½ in.....	-2
3½ to 4 in.....	42½	2½ to 3 in.....	-7
4 to 13 in.....	46	3½ to 4 in.....	-9

Beyond the above base discounts, the following extra discounts are given:

Lap Weld Steel		Charcoal Iron
Under 5000 lb..	4 Fives	1 Ten
5000 lb. to 12,000 lb.....	5 Fives	2 Tens
12,000 lb. to 21,000 lb.....	6 Fives	2 Tens & 2½
21,000 lb. and over .....	7 Fives	2 Tens & 5

### Standard Commercial Seamless Boiler Tubes

### Cold Drawn

1 in.....	63	3 in.....	48
1½ to 1¾ in.....	55	3½ to 3¾ in.....	50
1¾ in.....	39	4 in.....	53
2 to 2½ in.....	34	4½, 5 and 6 in.....	45
2½ to 3 in.....	42		

### Hot Rolled

2 and 2½ in.....	40	3½ and 3¾ in.....	56
2½ and 2¾ in.....	48	4 in.....	59
3 in.....	54	4½, 5 and 6 in.....	48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base (carloads).....	55
Carbon, 0.30% to 0.40%, base.....	50
Plus differentials for lengths over 18 ft. and for commercial exact lengths. Warehouse discounts on small lots are less than the above.	

efforts that may be made to get them. Makers of hoops have announced a reduction in the cash discount of from 1 per cent to one-half of one per cent, effective Oct. 1.

**Cold-Rolled Strips.**—As specifications on contracts continue to exceed expectations for this time of the year, the occasion does not exist for active solicitation of new business. Prices, though no higher than they have been, at least are steadier.

**Bolts, Nuts and Rivets.**—Firm prices, but only moderate activity still is the story of these products.

**Warehouse Business.**—Warehouse prices of sheets have been lowered \$2 per ton in keeping with the lower mill bases recently reached. Business is better in sheets than it was a month or so ago and is fairly active in the other steel products.

**Coke and Coal.**—Standard beehive oven furnace coke for spot or prompt delivery still is hard to buy at less than \$2.75 per net ton at ovens. This is the result of recent purchases by a steel company to supplement its by-product oven production and the fact that, with no assurance of a sustained demand, no ovens have been put into production. There are offerings of 48-hr. coke at \$2.65, which would be taken for blast furnace use if the requirements were urgent. Standard foundry coke sells commonly from \$3.75 to \$4, but there are offerings as low as \$3.25 and choice brands are priced from \$4.25 to \$4.85. The coal market still is very dull and prices are easy.

**Old Material.**—Heavy melting steel this week is quotable from \$14.50, at which one mill in the district bought a fair-sized tonnage, to \$15.50, which is the price reported to have been obtained for offerings of this grade in the August list of the Pennsylvania Railroad. Since the railroad steel went to a dealer, there is the inference that the mill at the point of delivery paid \$16, but this is not con-

firmed. Mill buying has not been conspicuous lately and the stronger tendency which the market has lately developed finds its chief explanation in the fact that the short interest is large at two points and dealers are disturbed because not much scrap is coming out. Compressed sheets have moved up with heavy melting steel and the higher prices also are supported by sales. The market is also firm on machine shop turnings and on blast furnace grades. There is 4034 gross tons in the August scrap list of the Norfolk & Western.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

Basic Open-Hearth Grades:		
Heavy melting steel.....	\$14.50 to	\$15.50
Scrap rails .....	14.00 to	15.00
Compressed sheet steel....	14.50 to	14.75
Bundled sheets, sides and ends .....	13.50 to	13.75
Cast iron carwheels.....	14.00 to	14.50
Sheet bar crops, ordinary..	15.00 to	15.50
Heavy breakable cast....	11.75 to	12.25
No. 2 railroad wrought....	14.50 to	15.50
Heavy steel axle turnings..	13.00 to	13.50
Machine shop turnings....	9.50 to	10.00
Acid Open-Hearth Grades:		
Railr. knuckles and couplers	15.00 to	15.50
Railr. coll and leaf springs	15.00 to	15.50
Rolled steel wheels.....	15.00 to	15.50
Low phos. billet and bloom ends .....	19.00 to	19.50
Low phos., mill plate....	17.50 to	18.00
Low phos., light grade....	16.50 to	17.00
Low phos. sheet bar crops..	17.50 to	18.00
Hvy. steel axle turnings..	13.00 to	13.50
Electric Furnace Grades:		
Low phos. punchings....	16.00 to	16.50
Hvy. steel axle turnings..	13.00 to	13.50
Blast Furnace Grades:		
Short shov'l'g steel turnings .....	10.00 to	10.50
Short mixed borings and turnings .....	10.00 to	10.50
Cast iron borings.....	10.00 to	10.50
No. 2 busheling .....	9.00 to	9.50
Rolling Mill Grades:		
Steel car axles.....	18.25 to	18.75
No. 1 railroad wrought....	10.50 to	11.00
Sheet bar crops .....	16.00 to	16.50
Cupola Grades:		
No. 1 cast .....	14.25 to	14.50
Rails 3 ft. and under....	15.00 to	15.50

## Rainey Interests Acquire Clyde Coal Co.

W. J. Rainey, Inc., New York, has bought the property of the Clyde Coal Co., comprising approximately 1000 acres of coal land, and on and near the Monongahela River a short distance south of Brownsville, Pa. A report that the purchaser had made a long time contract with the Sharpsville Furnace Co. to supply 30,000 tons of coal a month from the Clyde mine to a by-product coke plant to be built on Neville Island to serve the blast furnace recently bought from the United States Steel Corporation, however, is unconfirmed.

## Activity in New England

The Strand & Sweet Mfg. Co., Winsted, Conn., enameled wires, is working on two 12-hr. shifts.

The north side H. B. Smith Co., Westfield, Mass., heater plant is now operating with a night shift. Early in the year there was talk of closing the plant because of a lack of business.

The Dunbar Brothers Co., Bristol, Conn., springs, did more business

during the first half of 1928 than in the whole of 1927. It reports substantial unfilled orders on its books and has a larger force than at any other time in its history except during the war.

Confirming earlier reports of an unsatisfactory textile machinery market in New England, the Foster Machine Co., Westfield, Mass., is operating at not more than 60 per cent of capacity. The company expects no real improvement in the machinery market until the many changes entering into the textile situation have run their course.

## Scranton Mill Acquired For Lebanon Iron Co.

The Scranton Bolt & Nut Co., Scranton, Pa., has been taken over by interests represented by Charles Hart, president Delaware River Steel Co., Chester, Pa. For a number of months Mr. Hart has been active in reorganization work at the Lebanon Iron Co., Lebanon, Pa., and it is expected that the two companies will be closely connected. At present, however, no change will be made in the personnel or plant of either. Mr. Hart has been elected president and a director of the Scranton Bolt & Nut Co.

## Valley Mills Operating 75 to 80 Per Cent

YOUNGSTOWN, Aug. 7.—Hot weather during the past week curtailed production at Valley iron and steel plants somewhat, though schedules are being well maintained at rates of recent weeks. Some steel makers estimate that output this summer will come close to establishing a mid-year record, especially in tin mills.

Steel ingot production is sustained at 75 to 80 per cent average. The Republic Iron & Steel Co., the Youngstown Sheet & Tube Co. and the Carnegie Steel Co. are averaging fully 75 per cent.

Inflow of new business is at the rate of recent weeks. Of 53 independent open-hearth furnaces, 40 are melting, a loss of one compared with the preceding week; 14 of 20 pipe mills are in action and 99 of 127 sheet mills. Bar, plate, strip and tin mills are maintaining the schedules of recent weeks. Independent Bessemer steel production is at 60 per cent.

A ten-story structure, an addition to Bullock's, Los Angeles, represents a record in speedy construction, according to the American Institute of Steel Construction. The old buildings on this site were demolished in April. The finished piers for the beams were in place May 1 and by June 1 all of the steel framing was in place. The structural steel amounting to 1172 tons, was erected in 15 working days, according to the Llewellyn Iron Works, Los Angeles, who were responsible for the job.

## Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates .....	3.00c.
Structural shapes .....	3.00c.
Soft steel bars and small shapes...	2.90c.
Reinforcing steel bars.....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats.....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Black sheets (No. 24), 25 or more bundles .....	3.45c.
Galv. sheets (No. 24), 25 or more bundles .....	4.30c.
Blue ann'l'd sheets (No. 10), 1 to 10 sheets .....	3.35c.
Galv. corrug. sheets (No. 28), per square .....	\$4.31
Spikes, large.....	3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count, 60 per cent off list	
Machine bolts, 100 count, 60 per cent off list	
Carriage bolts, 100 count, 60 per cent off list	
Nuts, all styles, 100 count, 60 per cent off list	
Large rivets, base per 100 lb. ....	\$3.50
Wire, black soft ann'l'd, base per 100 lb. ....	\$3.00 to 3.10
Wire, galv. soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg .....	3.00
Cement coated nails, per keg .....	3.05



# Semi-Finished Steel, Raw Materials, Bolts and Rivets

## Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$32.00 to \$33.00
Rerolling, under 4-in. to and including 1½-in.....	33.00 to 34.00
Forging, ordinary.....	38.00
Forging, guaranteed.....	43.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$32.00 to \$33.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$32.00 to \$33.00
Smaller than 8 in. x 2 in.....	33.00 to 34.00

Skelp	
	Per Lb.
Grooved .....	1.85c. to 1.90c.
Sheared .....	1.85c. to 1.90c.
Universal .....	1.85c. to 1.90c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$42.00
Screw stock.....	\$5.00 per ton over base

\*Chicago mill base is \$43. Cleveland mill base, \$42.

## Prices of Raw Material

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron, 9.25c. to 9.50c. ....	39c.
Manganese ore, washed, 52% manganese, from the Caucasus.....	38c. to 39c.
Manganese ore, Brazilian, African or Indian, basis 50% .....	\$11.00 to \$11.25
Tungsten ore, high grade, per unit, in 60% concentrates .....	Per Gross Ton
Chrome ore, 45 to 50% Cr <sub>2</sub> O <sub>3</sub> , crude, c.i.f. Atlantic seaboard .....	Per Lb
Molybdenum ore, 85% concentrates of MoS <sub>2</sub> , delivered.....	50c. to 55c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt .....	\$2.65 to \$2.75
Foundry, f.o.b. Connellsville prompt .....	\$3.50 to 4.25
Foundry, by-product, Ch'go ovens.....	8.00
Foundry, by-product, New England, del'd.....	11.00
Foundry, by-product, Newark or Jersey city, delivered.....	9.00 to 9.40
Foundry, Birmingham.....	5.00
Foundry, by-products, St. Louis, f.o.b. ovens.....	8.00
Foundry by-prod., del'd St. Louis.....	9.00

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines .....	\$1.40 to \$1.80
Mine run coking coal, f.o.b. W. Pa. mines .....	1.50 to 1.75
Gas coal, ¾-in., f.o.b. Pa. mines.....	2.00 to 2.10
Mine run gas coal, f.o.b. Pa. mines.....	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines.....	1.00 to 1.05
Gas slack, f.o.b. W. Pa. mines.....	1.10 to 1.15

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$105.00
Foreign, 80%, Atlantic or Gulf port, duty paid .....	105.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$31.00 to \$32.00
Domestic, 16 to 19%.....	29.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50% .....	\$83.50 to \$88.50
75% .....	130.00 to 140.00
Per Gross Ton Furnace	
10% .....	\$35.00
11% .....	37.00
12% .....	\$39.00
14 to 16% .....	45.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10% .....	\$30.00
11% .....	32.00
12% .....	\$34.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6% .....	\$23.00
7% .....	24.00
8% .....	25.00
9% .....	26.00
10% .....	\$28.00
11% .....	30.00
12% .....	32.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd .....	95c.
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads.....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.15 to \$3.65
Ferrocobalt, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per gross ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per gross ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.00
No. 2 lump, Illinois and Kentucky mines.....	\$18.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
Per 1000 f.o.b. Works	
First Quality	Second Quality
Pennsylvania .....	\$43.00 to \$46.00
Maryland .....	43.00 to 46.00
New Jersey.....	50.00 to 65.00
Ohio .....	43.00 to 46.00
Kentucky .....	43.00 to 46.00
Missouri .....	43.00 to 46.00
Illinois .....	43.00 to 46.00
Ground fire clay, per ton.....	7.00

Silica Brick	
Per 1000 f.o.b. Works	
Pennsylvania .....	\$43.00
Chicago .....	52.00
Birmingham .....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
Per Net Ton	
Standard sizes, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick	
Per Net Ton	
Standard size .....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
	Per Cent Off List
†Machine bolts .....	.70
†Carriage bolts .....	.70
Lag bolts .....	.70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	.70
Hot-pressed nuts, blank or tapped, square.....	.70
Hot-pressed nuts, blank or tapped, hexagons.....	.70
C.p.c. and t. square or hex. nuts, blank or tapped .....	.70
Washers* .....	6.75c. to 6.50c. per lb. off list

\*F.o.b. Chicago, New York and Pittsburgh.  
†Bolts with rolled thread up to and including ¾ in. x 6 in. take 10 per cent lower list prices.

Bolts and Nuts	
Per Cent Off List	
Semi-finished hexagon nuts.....	.70
Semi-finished hexagon castellated nuts, S.A.E. .70	
Stove bolts in packages, Pittsburgh .80, 10 and 2½	
Stove bolts in packages, Chicago .75, 20, 10 and 5	
Stove bolts in bulk, Pittsburgh.....	.80, 10 and 5
Stove bolts in bulk, Chicago .75, 20, 10, 5 and 2½	
Tire bolts .....	.60, 5 and 5

Discounts of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.

Large Rivets	
(½-In. and Larger)	
	Base per 100 Lb.
F.o.b. Pittsburgh or Cleveland.....	\$2.90
F.o.b. Chicago.....	3.00

Small Rivets	
(¾-In. and Smaller)	
Per Cent Off List	
F.o.b. Pittsburgh.....	.70 and 10
F.o.b. Cleveland .....	.70 and 10
F.o.b. Chicago.....	.70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)	
Per Cent Off List	
Milled cap screws.....	.80, 10 and 10
Milled standard set screws, case hardened, 80 and 10 .....	
Milled headless set screws, cut threads.....	.80
Upset hex. head cap screws, U.S.S. thread.....	.85 and 5
Upset hex. cap screws, S.A.E. thread.....	.85 and 5
Upset set screws.....	.80, 10 and 10
Milled studs.....	.70 and 5

# Chicago

## Western Steel Market Holds Gains of Last Few Weeks— Great Northern Seeks 2500 Cars

CHICAGO, Aug. 7.—There is every indication that the local steel market has held the gains made in the last few weeks. Prices for finished steel products, however, are not steady at 2c., Chicago, for the reason that some sellers continue to use 1.95c. per lb. for bargaining purposes, and still lower quotations are being made to fabricators and tank builders where specific tonnages are involved. This situation is expected in some quarters to change as mill order books slowly grow and as producers gain greater confidence in the trend of the market for the remainder of this quarter.

In finished steel, sales are the best since the week ended June 23 and have not been exceeded by an appreciable margin since the seven-day period ended March 31. Specifications, which match well with new business, are in greater volume than in any week since May 19 and have not been exceeded since the last week in March. It is worthy of note that weekly comparisons of business can go back to the closing week in the first quarter, when operations were close to capacity.

There is no change in the character of business. The improvement is general, even now extending to the car industry, which has begun to figure on 2500 freight cars and 2000 underframes for the Great Northern. This inquiry calls for 1000 ore cars, 500 gondolas, 500 flat cars and 500 box cars, which, with the steel needed for the underframes, will add not far from 45,000 tons of steel to producers' books.

Rail mill operations are fair, considering that this is beyond the time when such shipments are usually made. The Chicago, Rock Island & Pacific has applied for permission to build a 6-mile spur in Arkansas.

Following a sharp increase in building permits in Chicago, there is now over 15,000 tons of new structural inquiry before local fabricators. Awards during the week totaled 3000 tons.

**Ferroalloys.**—Prices for 19 to 21 per cent spiegeleisen range from \$31, Hazard, Pa., in tonnages to \$33 a ton in car lots, several sales of the latter size having been made during the week. Some of the foreign product is being offered freely at \$32. Ferromanganese is quiet and quotations are based on \$105, seaboard.

**Prices delivered Chicago:** 80 per cent ferromanganese, \$112.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegel-eisen, 19 to 21 per cent, \$40.76.

**Pig Iron.**—The steady buying movement that started several weeks ago in the Northern iron market is still in evidence. Some buyers, having covered for the remainder of the year, are sufficiently attracted by present prices to make inquiry for tonnages to be delivered after Jan. 1. Inquiry for shipment in this and the next quarter is not being broadcast, buyers preferring to enter the market quietly. A few small orders to the west and south are being filled by iron from Granite City at prices that are governed by Chicago furnace quota-

tions and local freight rates. Some of this iron is reaching into territory where freight differentials favor Chicago producers. A Chicago user has ordered 2000 tons of foundry iron. A melter in Iowa will buy 1500 tons of Southern iron. Purchases in July totaled 150,000 tons and the daily rate in August compares favorably with that in July.

**Prices per gross ton at Chicago:**  
N'th'n No. 2 fdy., sil. 1.75 to 2.25...\$17.50  
N'th'n No. 1 fdy., sil. 2.25 to 2.75... 18.00  
Malleable, not over 2.25 sil..... 17.50  
High phosphorus..... 17.50  
Lake Super. charcoal, sil. 1.50..... 27.04  
So'th'n No. 2 fdy. (all rail)..... 21.51  
So'th'n No. 2 (barge and rail)..... 21.01  
Low phos., sil. 1 to 2, copper free.....\$28.50 to 29.00  
Silvery, sil. 8 per cent..... 29.79  
Bess. ferrosilicon, 14-15%..... 46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable, which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Structural Material.**—The outlook in structural material is taking a sudden change for the better as 10,000 tons in new projects comes before the trade. In Chicago, the Thompson Building and the Ruboff Garage will each require 2000 tons, and an extension to Wacker Drive calls for 2500 tons. The revival of the McCormick Estate building project promises 2500 tons additional, and if a permit is granted to the United States Gypsum Co. for a plant in the Calumet district another 2500 tons will be added to the active list. Noteworthy among awards are 1000 tons for a viaduct at Topeka, Kan.; 600 tons for highway bridges at Oklahoma City, Okla., and 500 tons for a school at Muncie, Ind. Building permits in Chicago during July were 41 per cent larger than in July, 1927, and 4 per cent larger than in June, this year. This situation is lending encouragement to fabricators, who have been engaged close to capacity in recent weeks, but who lacked the assurance that operations would be maintained even as far ahead as Sept. 1. Two large projects in Chicago are being held in check. The Fine Arts Building, requiring 5000 tons, cannot go ahead at present because bids for rehabilitation of the structure exceed the amount of the funds provided in the bond issue. The Patterson Estate building is delayed while the design is being changed. On the general run of business, shape prices are steady at 2c.; however, on highly competitive projects 1.90c., Chicago, is being done.

**Mill prices on plain material, per lb.: 2c., base, Chicago.**

**Plates.**—New orders for plates for oil storage tanks are scarce, the total amounting only to 1000 tons. Inquiry, however, bulks large and the changed outlook throughout the oil industry gives steel producers encouragement. Specifications against recent business are large, the bulk of orders being for immediate shipment. Except for an inquiry from the Great Northern for 2500 freight cars and 2000 steel underframes, the railroad equipment market is quiet. Little business is coming to the steel trade from car builders. It is reported here that 150 of the all-steel refrigerator cars recently ordered by the Pennsylvania Railroad will be built in shops near Chicago. The Chicago, Burlington & Quincy is considering building 33 suburban passenger cars in its shops at Aurora, Ill. Plate mills are engaged at close to 70 per cent, due in large measure to demands of pipe makers, the building industry and oil field work.

**Mill prices on plates, per lb.: 2c., base Chicago.**

**Bars.**—Demand for soft steel bars remains near the high level reached a week ago. Local mills are engaged close to 80 per cent of capacity and occasionally a unit is found which is operating at capacity. In a few sizes deliveries have been pushed forward, the range now being three to five weeks. Reinforcing bar dealers are taking larger quantities, while the automobile industry and manufacturers of farm implements find that their needs are not diminishing. Unsteadiness in prices is no more marked than during the last three weeks. In scattered cases a seller will use 1.95c., Chicago, as a bargaining price, or he will drop to that figure for an attractive order. To offset this, however, several sizeable sales to industrial users at 2c. are reported. Demand for rail steel bars is steady and shipments do not quite measure up to production. Deliveries range from four to six weeks except for the more extended dates for tube products made from old rails.

**Mill prices per lb.: Soft steel bars, 2c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 1.85c., base, Chicago Heights mill.**

**Reinforcing Bars.**—This week follows in the path of late July in the placing of contracts. Fresh inquiry is of good size and more is to come, as indicated by the activity of architects. Total business in the first seven months of this year was not equal to that in the corresponding part of 1927. Small orders are growing in number and shop schedules are well balanced. Some unsteadiness is noted in warehouse prices for billet steel bars, weakness being more evident in large tonnage quotations than on orders for 100 tons and less. Recent awards and fresh inquiries are shown on page 375.

**Sheets.**—Sales continue in fair volume and hot mill bookings are growing. This incoming business is in sufficient volume to defer any material profit which might come to producers through an advance in sheet prices.



That an advance is in sight now appears probable, but its effect will be more as a gesture toward getting higher prices for fourth-quarter business than as a move that will widen margins of profit over the next 45 to 60 days. In some quarters it is believed that an advance now will lead to a second increase of \$2 a ton before the opening of the next quarter. Present prices at Chicago are 2.15c. per lb. for blue annealed sheets, 3.65c. for galvanized and 2.80c. for black sheets. Local sellers have not as yet taken definite action in establishing one half of 1 per cent discount in place of the 2 per cent for cash in 10 days, which some mills have announced will take effect Oct. 1. Current specifications, plus new business for immediate release, are holding hot mill operations at 75 to 80 per cent of capacity, and schedules are better arranged and further in advance than in late July. The roofing trade is actively buying against its fall needs.

Base prices per lb., deliv'd from mill in Chicago: No. 24 black sheets, 2.80c.; No. 24 galv., 3.65c.; No. 10 blue ann'd, 2.15c. Deliv'd prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than Chgo. deliv'd prices.

**Rails and Track Supplies.**—Miscellaneous orders continue to reach this market and local rail mills are holding to 50 per cent of capacity. One railroad has placed 4000 tons of standard-section rails, this being new business over and above the old contract and option. The Milwaukee Harbor Commission will take figures on 750 tons of rails and 250 tons of track accessories. Track supply output holds to 70 to 80 per cent of capacity, a range that has been maintained for several weeks. Chicago mills are looking for the fall rail buying movement to start in September. Considerable optimism exists over the outlook for rail purchases, following exceptionally satisfactory crops that are now maturing in the West and Northwest.

Prices f.o.b. mill, per gross ton: Standard-section open-hearth and Bess. rails, \$43; light rails, rolled from billets, \$36. Per lb.: Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.15c.; angle bars, 2.75c.

**Old Material.**—The strength shown in this market a week ago is being

carried forward and has now spread to the specialties. Electric furnace users have more business and are buying for future requirements. Less sales resistance is being offered by operators of gray iron foundries. It is reported from Milwaukee that an accumulation of heavy melting steel, which is said to have totaled over 75,000 tons at one time, has largely been absorbed by users in Chicago. This is having a strong influence on the local market. A heavier use of scrap at steel mills is reflected in lessened restriction as to the rate of shipments. Dealers are paying over \$13.25 a gross ton for heavy melting steel to be applied against old orders. The possibility of boat shipments of scrap from Chicago appear to hinge around the difficulty of the rapid assembling of the tonnage needed in order to avoid the per diem charge on the boat. An industrial producer offers 250 tons of cast iron borings.

Prices deliv'd Chicago district consumers:

Per Gross Ton	
Basic Open-Hearth Grades:	
Heavy melting steel.....	\$12.75 to \$13.25
Shoveling steel.....	12.75 to 13.25
Frogs, switches and guards, cut apart, and misc. rails	13.50 to 14.00
Hydraulic compressed sheets	11.25 to 11.75
Drop forge flashings.....	9.50 to 10.00
Forg'd, cast and r'l'd steel carwheels.....	15.50 to 16.00
Railr'd tires, charg. box size.....	15.50 to 16.00
Railr'd leaf springs, cut apart.....	15.50 to 16.00
Acid Open-Hearth Grades:	
Steel couplers and knuckles	13.75 to 14.25
Coil springs.....	15.75 to 16.25
Electric Furnace Grades:	
Axle turnings.....	12.50 to 13.00
Low phos. punchings.....	14.00 to 14.50
Low phos. plate, 12 in. and under.....	14.00 to 14.50
Blast Furnace Grades:	
Axle turnings.....	9.00 to 9.50
Cast iron borings.....	9.25 to 9.75
Short shoveling turnings...	9.00 to 9.50
Machine shop turnings...	6.00 to 6.50
Rolling Mill Grades:	
Iron rails.....	13.50 to 14.00
Rerolling rails.....	14.75 to 15.25
Cupola Grades:	
Steel rails less than 3 ft..	15.25 to 15.75
Angle bars, steel.....	14.50 to 15.00
Cast iron carwheels.....	12.75 to 13.00
Malleable Grades:	
Railroad.....	12.50 to 13.00
Agricultural.....	11.50 to 12.00
Miscellaneous:	
*Relay'g rails, 56 to 60 lb. heav.	23.00 to 25.00
*Relay'g rails, 65 lb. and heav.	26.00 to 31.00
Per Net Ton	
Rolling Mill Grades:	
Iron angles and splice bars	13.50 to 14.00
Iron arch bars and transoms.....	19.50 to 20.00
Iron car axles.....	24.00 to 24.50
Steel car axles.....	15.50 to 16.00
No. 1 railroad wrought...	10.75 to 11.25
No. 2 railroad wrought...	11.25 to 11.75
No. 1 busheling.....	9.50 to 10.00
No. 2 busheling.....	5.75 to 6.25
Locomotive tires, smooth...	12.00 to 12.50
Pipes and flues.....	8.00 to 8.50
Cupola Grades:	
No. 1 machinery cast.....	13.50 to 14.00
No. 1 railroad cast.....	12.75 to 13.25
No. 1 agricultural cast.....	12.50 to 13.00
Stove plate.....	10.75 to 11.25
Grate bars.....	11.25 to 11.75
Brake shoes.....	10.00 to 10.50

\*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

**Cast Iron Pipe.**—The bulk of going business, which is in small lots this week, is being taken at \$35 a ton, Birmingham, and quotations on large tonnages are close to \$34. Current business is for the most part of car lot proportions and fresh inquiry is

small in the aggregate, though several municipalities in and near Cook County, Illinois, are giving consideration to purchases of cast iron pipe. Two public utility companies have ordered a total of 800 tons, and several railroads have taken small tonnages. The only public inquiry of note is for 300 tons of 16 to 48-in. pipe for Columbus, Ohio. Total sales in the first seven months of this year lagged behind those in the corresponding period in 1927. Several foundries report low stocks on hand.

Prices per net ton, deliv'd Chicago: Water pipe, 6-in. and over, \$42.20 to \$43.20; 4-in., \$46.20 to \$47.20; Class A and gas pipe, \$4 extra.

**Hot-Rolled Strip.**—Chicago district mills continue to operate at capacity, as users, including automobile frame makers, press for deliveries and release specifications at a steady rate. Prices are steady at 2c. to 2.30c. per lb., Chicago, depending on the width desired.

**Wire Products.**—Reports of current business vary, but as judged by shipments the general average strikes not far from the level of last week. Mill output remains at 60 to 65 per cent of capacity. Mill stocks are adequate and are being held stationary except in reinforcing mesh, which is in large demand at this time of the year. Sales to the manufacturing trade have grown in the last seven days. Jobbing trade in rural districts is quiet, but the outlook for the fall trade is favorable as based on the apparent assurance that crops will be large. New purchases and specifications by the railroads are light. Demand for nails remains sluggish, especially in rural districts. Reports of a sharp increase in building permits in Chicago in July hold some promise for a better demand from the local building trade.

**Coke.**—Shipments are steady and all ovens are lighted. Prices for by-product foundry coke are \$8, f.o.b. local ovens, and \$8.75 a ton, delivered in the Chicago switching district.

**Bolts, Nuts and Rivets.**—Specifications are steady. The industry is engaged at between 60 and 65 per cent of capacity.

## Increases Land Holdings at Economy

Spang, Chalfant & Co. have acquired from the Columbia Steel & Shafting Co. approximately 44 acres of land which the latter bought about eight years ago at Economy, Pa., as a site for a plant which was to have combined the facilities of its plants at Carnegie and Rankin, Pa. Having previously acquired the land holdings of the Economite Society, Spang, Chalfant & Co. now hold title to about 500 acres of industrial land in Economy, or substantially all there is that is not occupied. The most recent purchase adjoins the site of the Standard Seamless Tube Co., now part of Spang, Chalfant & Co. An announcement as to the utilization of the land will be made this fall.

## Warehouse Prices, f.o.b. Chicago

Base per Lb.	
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.00c.
Reinforc'g bars, billet steel 2.30c. to 2.00c.	
Reinforc'g bars, hard steel 2.00c. to 2.70c.	
Cold-fin. steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands.....	3.65c.
Hoops.....	4.15c.
Black sheets (No. 24).....	3.80c.
Galv. sheets (No. 24).....	4.65c.
Blue ann'd sheets (No. 10).....	3.35c.
Spikes, stand. railroad.....	3.55c.
Track bolts.....	4.55c.
Rivets, structural.....	3.60c.
Rivets, boiler.....	3.60c.
Per Cent Off List	
Machine bolts.....	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, sq., tap. or blank...	60
Hot-pressed nuts, hex., tap. or blank...	60
No. 8 black ann'd wire, per 100 lb.	\$3.30
Com. wire nails, base per keg.....	3.10
Cement c't'd nails, base per keg.....	3.10

# Philadelphia

## July Activity in Steel Buying Continues, but Prices Still Show \$1 a Ton Range

PHILADELPHIA, Aug. 7.—The steady flow of steel business, which reached such satisfactory proportions in July, is continuing into the present month, so that sellers are beginning to view the third quarter with considerable optimism. Prices are still slightly irregular, the quoted market price applying in most cases only on small lots for prompt shipment. Sheet mills are endeavoring to stabilize prices on blue annealed, black and galvanized sheets by eliminating concessions of \$1 a ton on blue annealed and black and \$2 a ton on galvanized, but the lower levels are still obtainable, especially by distributors and other preferred buyers. Bar and plate prices show more firmness than quotations on shapes, but concessions from 2c. per lb., Pencoyd, on shapes have become less common than a few weeks ago.

**Pig Iron.**—Eastern Pennsylvania furnaces are maintaining \$19.50 per ton, base, on the foundry grade, but present inquiries, which range from a carload to 100 or 200 tons, offer little test of the market. Although Buffalo iron is being sold to many consumers in this district, sellers here are beginning to discount some of the low prices claimed by buyers. On a carload of foundry iron for the United States Navy Yard, Philadelphia, the Delaware River Steel Co. was low bidder and on a carload for the Brooklyn Navy Yard the Alan Wood Iron & Steel Co. was low. The Baldwin Locomotive Works, Eddystone, Pa., has closed on 2000 tons of cylinder iron with an eastern Pennsylvania steel company furnace.

### Prices per gross ton at Philadelphia:

East. Pa. No. 2, 1.75 to 2.25 sil.	\$20.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	20.76
East. Pa. No. 1X.	21.26
Basic (del'd east. Pa.)	\$18.75 to \$19.25
Gray forge	19.75 to 20.25
Malleable	21.00 to 21.50
Stand. low phos. (f.o.b. N. Y. State furnace)	22.00 to 23.00
Cop. b'rg low phos. (f.o.b. furnace)	23.00 to 23.50
Va. No. 2 plain, 1.75 to 2.25 sil.	24.54
Va. No. 2X, 2.25 to 2.75 sil.	25.04

Prices, except as specified otherwise, are deliv'd Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

**Billets.**—Sales of rerolling quality at \$32 per ton are less common, most mills maintaining the market at \$33 per ton, Pittsburgh, on rerolling grade and \$38, Pittsburgh, for forging billets.

**Bars.**—While most mills are quoting 1.90c., Pittsburgh, or 2.22c., Philadelphia, on new business, it apparently applies for the most part to small orders for prompt shipment. Current contracts are, with few exceptions, at 1.85c., Pittsburgh, or 2.17c., Philadelphia, and desirable tonnages for delivery in this quarter usually bring out this price. Bar mills are well booked with orders, having had in July one of the best months of the year. Local construction projects requiring reinforcing bars seldom exceed 30 or 40 tons.

**Shapes.**—Prices are still considerably less than the scheduled market of 2.05c., Bethlehem, or 2.18c., Phila-

delphia, but concessions from 2c., Pencoyd, or 2.06c., Philadelphia, are less common, the bulk of present business being reported at 2.06c. to 2.08c., delivered Philadelphia.

**Plates.**—On small tonnages for prompt shipment 2.05c., Coatesville, usually applies, but larger business is at \$1 a ton less, or 2.10c., delivered Philadelphia, which is the current contract price. Mills report a good volume of business, especially large for midsummer.

**Sheets.**—Despite recent efforts of mills to maintain prices at a higher level, black sheets are still obtainable by preferred buyers at 2.60c. per lb., Pittsburgh, or 2.92c., Philadelphia, a concession of \$1 a ton from the quoted market; galvanized sheets still bring 3.40c., Pittsburgh, or 3.72c., Philadelphia, which is \$2 a ton lower than the price some mills are trying to maintain. There are still occasional instances of slight concessions from 2c., Pittsburgh, or 2.32c., Philadelphia, on blue annealed sheets, but most sales of this product show no concession.

**Warehouse Business.**—Effective Aug. 1, jobbers in this district advanced prices on bars and bar-size shapes 10c. per 100 lb. to 2.70c. per lb., base. The early part of July was active, but the final week of the month registered a slight decline in tonnage

### Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, ¼-in. and heavier	2.50c. to 2.60c.
Plates, ⅜-in.	2.80c. to 3.00c.
Structural shapes	2.40c. to 2.60c.
Soft steel bars, small shapes, iron bars (except bands)	2.70c.
Round-edge iron	3.50c.
Round-edge steel, iron finished 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforc. steel bars, sq. twisted and deform.	2.50c. to 3.00c.
Cold-fin. steel, rounds and hex.	3.35c.
Cold-fin. steel, sq. and flats	3.85c.
Steel hoops	3.50c.
Steel bands, No. 12 to ⅜-in., inclus.	3.25c.
Spring steel	5.00c.
*Black sheets (No. 24)	3.85c.
†Galvanized sheets (No. 24)	4.60c.
Blue ann'd sheets (No. 10)	3.15c.
Diam. pat. floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	3.20c.
Swedish iron bars	6.60c.

\*For 50 bundles or more; 10 to 49 bun., 4.10c. base; 1 to 9 bun., 4.35c. base.  
†For 50 bundles or more; 10 to 49 bun., 4.95c. base; 1 to 9 bun., 5.30c. base.

moving from stock, and the total of orders in the first few days of the present month is also smaller.

**Imports.**—In the week ended Aug. 4 there were no arrivals of pig iron at this port, but a total of 14,623 tons of iron, manganese and chrome ore was received. Of this, 246 tons of iron ore was from Spain, 2000 tons of chrome ore from Portugal and, of three shipments of manganese ore, 7350 tons came from Russia, 5016 tons from British West Africa and 11 tons from Germany. Ferromanganese totaling 130 tons came from the United Kingdom and 50 tons of steel scrap arrived from Germany. Steel arrivals consisted of 406 tons of structural shapes from Belgium, 24 tons of steel bars from Germany and 46 tons of billets from Sweden.

**Old Material.**—Prices show little change, with a plentiful supply of scrap available at the present market levels. A small tonnage of machine shop turnings has been bought by a consumer at Phoenixville, Pa., for \$10.50 per ton, an advance of 25c. a ton from its previous purchase price. A mill at Claymont, Del., has bought close to 10,000 tons of No. 1 heavy melting steel from two dealers at \$13 per ton, delivered. A small tonnage of cast iron carwheels was closed last week at \$15.75 per ton, delivered, but a desirable order would apparently still bring out \$15 per ton.

### Prices per gross ton delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel.	\$13.00
Scrap T rails.	12.50
No. 2 heavy melting steel.	\$10.50 to 11.00
No. 1 railroad wrought.	13.50 to 14.50
Bundled sheets (for steel works)	9.50 to 10.00
Machine shop turnings (for steel works)	10.00 to 10.50
Heavy axle turnings (or equiv.)	12.00 to 13.00
Cast borings (for steel works and roll. mill)	10.00 to 10.50
Heavy breakable cast (for steel works)	14.00 to 15.00
Railroad grate bars.	11.00 to 11.50
Stove plate (for steel works)	10.50 to 11.00
No. 1 low phos., hvy., 0.04% and under.	17.50 to 18.00
Couplers and knuckles.	14.50 to 15.00
Rolled steel wheels.	14.50 to 15.00
No. 1 blast f'nace scrap.	9.50 to 10.00
Wrot. iron and soft steel pipes and tubes (new specific.)	12.00 to 12.50
Shafting	16.50 to 17.00
Steel axles	19.00 to 20.00
No. 1 forge fire.	11.00
Cast iron carwheels	15.50 to 15.75
No. 1 cast.	15.50 to 16.00
Cast borings (for chem. plant)	14.50 to 15.00
Steel rails for rolling.	14.50 to 15.00

## Pacific Coast Plant to Make Tin Plate

Tin plate is to be produced on the Pacific Coast for the first time in February, 1929, according to an announcement by the Columbia Steel Corporation, San Francisco. The directors of the company recently made an appropriation of \$4,300,000 for plant extensions, \$2,500,000 of which is to be used in constructing a tin plate mill at the Pittsburgh plant of the company. The new mill, when completed, will have a capacity of 50,000 tons per year.



# New York

## Pig Iron Sales Total 20,000 Tons—Structural Steel Outlook Continues Promising

NEW YORK, Aug. 7.—Pig iron sales amounting to more than 20,000 tons made the past week the most active of the summer and inquiries are coming out daily which promise to maintain a satisfactory volume of buying for the greater part of the month. There are also indications that prices have not shown further weakness, and any change which may have taken place seems to be on the side of firmness. Outstanding among the week's transactions was the purchase by the Eastern Malleable Iron Co. of 6000 tons of malleable for delivery over the remainder of the year to its five plants. The business is said to have been divided between two and possibly three furnaces. Another sale of 2000 tons is reported, and the Richmond Radiator Co. has closed against its inquiry for 1500 tons of foundry iron for Norwich, Conn. The bulk of this tonnage is said to have gone to the Massachusetts maker. Other sales of from 500 to 1000 tons are reported and smaller purchases include 200 tons of foundry iron for spot shipment to the Schenectady, N. Y., works of the American Locomotive Co. and 100 tons of silvery for the New York Air Brake Co. at Watertown, N. Y. Reported purchase of a substantial tonnage by the American Radiator Co. cannot be confirmed, although the company is expected to buy iron for its various Eastern plants in the near future. New inquiry, totaling from 10,000 to 12,000 tons, includes 4000 tons of No. 2 plain and No. 2X for shipment over the rest of the year to the two plants in northern New Jersey of a large furnace manufacturer. Some 3000 tons will be bought by another melter in this district, and smaller inquiries include a lot of 700 tons, 500 tons for a New England consumer and 250 tons for a melter in the New York territory. Buffalo furnaces are shipping foundry iron by barge to storage yards at New Jersey tidewater points and it is estimated that from 50,000 to 75,000 tons will have been accumulated by the time navigation on the State barge canal closes in the fall. One interest has storage facilities at Elizabethport and another at Jersey City and the iron will be reshipped by rail to Eastern consumers as the demand arises. While this movement virtually amounts to an extension of the time during which barge competition from Buffalo can affect this market, a curtailment of production at furnaces in that district seems to be leading to a somewhat better price situation. The Hanna Furnace Co. has blown out a Susquehanna stack and only three furnaces at Buffalo are now operating on foundry iron. The price of this grade still ranges from \$16 to \$16.50, furnace, and instances of cutting the lower figure are seldom heard outside

of highly competitive New England territory. An adjustment of freight rates on the New York, New Haven & Hartford Railroad in that district is said to have been favorable to the

### Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.30c.
Soft steel bars, small shapes.....	3.25c.
Iron bars.....	3.24c.
Iron bars, Swed. charcoal.....	7.00c. to 7.25c.
Cold-fin. shafting and screw stock—	
Rounds and hexagons.....	3.40c.
Flats and squares.....	3.90c.
Cold-roll. strip, soft and quarter	
hard.....	5.15c. to 5.40c.
Hoops.....	4.50c.
Bands.....	4.00c.
Blue ann'd sheets (No. 10).....	3.85c. to 3.90c.
Long terne sheets (No. 24).....	5.60c. to 5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galv. annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in.	
and larger.....	3.65c.
Open-hearth spring steel, bases,	
4.50c. to 7.00c.	
Machine bolts, cut thread:	Per Cent
¾ x 6 in. and smaller.....	60
1 x 30 in. and smaller.....	50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	60
¾ x 20 in. and smaller.....	50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	60
1 x 16 in. and smaller.....	50 to 50 and 10
Roller Tubes—	Per 100 Ft.
Lap welded, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

Discount on Welded Pipe		
Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12
Wrought Iron—		
½-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

Tin Plate (14 x 20 in.)		
	Prime	Seconds
Coke, 100 lb. base box....	\$6.45	\$6.20
Charcoal, per Box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

Terne Plate (14 x 20 in.)		
IC—20-lb. coating.....	\$10.00 to \$11.00	
IC—30-lb. coating.....	12.00 to 13.00	
IC—40-lb. coating.....	13.75 to 14.25	

Sheets, Box Annealed—Black, C. R.		
	One Pass	Per Lb.
Nos. 18 to 20.....	3.60c. to 3.80c.	
No. 22.....	3.75c. to 3.95c.	
No. 24.....	3.80c. to 4.00c.	
No. 26.....	3.90c. to 4.10c.	
No. 28.....	4.05c. to 4.25c.	
No. 30.....	4.30c. to 4.50c.	

Sheets, Galvanized		
	Per Lb.	
No. 14.....	4.15c. to 4.35c.	
No. 16.....	4.00c. to 4.20c.	
No. 18.....	4.15c. to 4.35c.	
No. 20.....	4.30c. to 4.50c.	
No. 22.....	4.35c. to 4.55c.	
No. 24.....	4.50c. to 4.70c.	
No. 26.....	4.75c. to 4.95c.	
No. 28.....	5.00c. to 5.20c.	
No. 30.....	5.40c. to 5.60c.	

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Everett furnace. Eastern Pennsylvania iron is quoted at \$19.50, furnace.

Prices per gross ton, deliv'd New York district:

Buffalo No. 2 fdy., sil. 1.75	
to 2.25.....	\$19.51 to \$20.01
East. Pa. No. 2 fdy., sil.	
1.75 to 2.25.....	20.89 to 22.02
East. Pa. No. 2X fdy., sil.	
2.25 to 2.75.....	21.39 to 22.52
East. Pa. No. 1X fdy., sil.	
2.75 to 3.25.....	21.89 to 23.02

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

Sheets.—Although no definite announcements have reached local selling offices, there are reports of a prospective advance in sheet prices. Meanwhile, some headway has been made in bringing about a degree of stabilization in present quotations. On black sheets, 2.65c., Pittsburgh, is the objective of most of the mills, and while 2.60c. may not have disappeared, it is more difficult for the buyer to find a mill willing to quote this price. On galvanized sheets, the situation is fairly well defined, with 3.40c. as the minimum and 3.50c. the maximum. Blue annealed sheets are fairly steady at 2c., particularly when quoted on by the jobbing mills. Coverage for the remainder of the quarter can be obtained at prevailing prices, but mills are cautious about making any commitments which might be construed as an effort on the part of buyers to provide for some of their fourth quarter requirements at present prices. The sheet trade is confident that prices will be at least \$2 a ton higher for the last quarter.

Plates, Shapes and Bars.—Sales totals for July computed by offices in New York were 10 to 15 per cent ahead of those for the same month last year, but generally were somewhat below the volume of business booked in this district in June. Orders during the first week of August have been keeping up to the July rate. That some consumers have enjoyed a larger business this quarter than they expected is indicated by several requests for extension of third quarter contracts. Some mills have been willing to make extensions at 1.85c. for actual requirements of buyers, while others have insisted on 1.90c., Pittsburgh, or the Eastern basing of 2.05c. Few instances of this kind have arisen, however, as nearly all buyers are covered for the quarter at the 1.85c. basis, and sales at 1.90c. are usually to the small buyers who did not make contracts. Some mills, as previously reported, have asked customers to specify all third quarter tonnage not later than Sept. 10, but in view of the usual practice of permitting specifications up to the last day of the quarter, the success of this change will not become apparent until Sept. 10 has arrived. Some buyers are expected to interpret their contracts as giving them the right to specify at any time within the 90 days, especially as the present contract form contains no wording which places any other limitation on the time for specifying. The volume of structural steel business continues to

increase, and there are a sufficient number of new projects in the market to afford excellent prospects for sustained activity. Structural mill schedules are better filled, and there is a lengthening of deliveries on some sizes. Prices quoted on fabricated material are also said to be slightly firmer, reflecting the higher prices which fabricators will have to pay. Structural steel awards for three sections of New York subways are being held up until after the meeting of the Board of Estimate on Aug. 16. Section 2, route 109, requiring 9400 tons, has been tentatively awarded pending approval by the board, and there are two other sections, one calling for 11,000 tons and the other for 4000 tons, which probably will be approved at the same time. About 6400 tons will be needed for approach spans for a Newark Bay bridge, to be used jointly by the Pennsylvania and Lehigh Valley Railroads. The Pennsylvania has bought 550 all-steel express refrigerator cars of a new type from four car builders.

*Mill prices per lb., deliv'd New York:* Soft steel bars, 2.19c. to 2.24c.; plates 2.12½c. to 2.22½c.; struct. shapes, 2.14½c. to 2.19½c.; bar iron, 2.14c.

**Old Material.**—Prices on most grades are stronger and in some cases brokers are offering from 25c. to 50c. per ton more than a week ago. No. 1 heavy melting steel is being purchased by brokers at \$12.50 per ton, delivered eastern Pennsylvania, to cover on \$13 contracts totaling about 10,000 tons for a Claymont, Del., consumer. Yard grade of heavy melting steel is quoted at \$10 to \$10.50 per ton, the lower price delivered to a Pottsville, Pa., mill and the higher quotation for Harrisburg and Conshohocken, Pa. Machine shop turnings are going to a Phoenixville, Pa., consumer at \$10 per ton, delivered. Heavy cast scrap in charging box size is being shipped to Conshohocken, Pa.

*Dealers' buying prices per gross ton, f.o.b. New York:*

No. 1 heavy melting steel.	\$9.00 to \$9.85
Heavy melting steel (yard)	6.25 to 6.75
No. 1 hvy. breakable cast.	10.00 to 11.00
Stove plate (steel works)...	6.75 to 7.25
Locomotive grate bars....	6.75 to 7.25
Machine shop turnings....	6.25 to 6.50
Short shoveling turnings....	6.25 to 6.50
Cast borings (blast furn. or steel works).....	6.00 to 6.50
Mixed borings and turnings .....	6.00 to 6.50
Steel car axles.....	15.00 to 15.50
Iron car axles.....	23.50 to 24.00
Iron and steel pipe (1 in. dia., not under 2 ft. long)	8.25 to 8.75
Forge fire .....	6.50 to 6.75
No. 1 railroad wrought....	9.00 to 9.50
No. 1 yard wrot., long....	7.50 to 8.00
Rails for rolling.....	10.00 to 10.50
Cast iron carwheels.....	11.00 to 12.00
Stove plate (foundry)....	8.25 to 8.75
Malleable cast (railroad)....	10.00
Cast borings (chemical)...	10.75 to 11.25

*Prices per gross ton, deliv'd local foundries:*

No. 1 machy. cast.....	\$14.00 to \$15.00
No. 1 hvy. cast (columns, bldg. materials, etc.), cupola size .....	12.00 to 13.00
No. 2 cast (radiators, cast boilers, etc.) .....	11.50 to 12.50

**Warehouse Business.**—Jobbers report a steady improvement in volume of orders, the first week of the month showing a larger total of shipments from stock than the first week of July. Prices are being maintained with very little shading, except on black

and galvanized sheets. The quoted range of prices on sheets is 3.80c. to 4c. per lb., base, for black and 4.50c. to 4.70c., base, for galvanized. In some instances, however, as low as 4.35c. on galvanized and 3.65c. on black are reported obtainable. Discounts on machine and carriage bolts and coach screws in the small sizes appear to have settled to 60 per cent off list even for the smaller lots, which formerly were quoted at 55 per cent off.

**Reinforcing Bars.**—Awards during the last week have been light but a considerable tonnage will be required in new projects which have come out recently. A causeway at Jones Beach, L. I., calls for 850 tons; a warehouse in New York, 600 tons; a boardwalk at Rockaway Beach, 325 tons; sewer work in the Borough of Queens, 350 tons, and two buildings for the Western Electric Co. at Kearny, N. J., 300 tons. Small orders are coming at about the same rate which prevailed during July. There has been no change in prices.

**Cast Iron Pipe.**—Southern makers continue to quote on a basis of \$34 to \$35 per net ton, base, Birmingham, which is \$43.25 to \$44.25 per ton, delivered New York, but Northern makers are maintaining \$37.60 to \$38.60 per ton, delivered; in some cases where competition is keen these prices are shaded by \$1 to \$2 a ton and more. The usual midsummer quiet pervades the market and buying is

limited to small lots. A municipal inquiry of size calls for 117,650 ft. (3260 tons) of 6, 8, 12 and 16-in. water pipe, classes A and B, for Fairlawn, N. J., bids opening Aug. 14. Alternate bids are being taken on centrifugal pipe. The American Construction & Securities Co., New York, is reported to have placed orders totaling about 850 tons of pipe in the past week for various properties. This is in addition to about 800 tons bought a fortnight ago.

*Prices per net ton, deliv'd New York:* Water pipe 6-in. and larger, \$37.60 to \$38.60; 4-in. and 5-in., \$42.60 to \$43.60; 3-in., \$52.60 to \$53.60; Class A and gas pipe, \$4 to \$5 extra.

**Coke.**—A somewhat firmer price tendency has developed in furnace coke and buyers are now forced to pay at least \$2.75 for this grade on August and September shipments. Some Connellsville interests have curtailed production to the extent that their order books are well filled during the remainder of the quarter and are not willing to take business at \$2.75. Foundry coke is unchanged at \$3.50 per net ton, Connellsville, and specifications against contracts are very satisfactory for this time of year. Special brands of foundry coke are offered at \$4.85, f.o.b. ovens, and delivered prices are \$8.56 per net ton to northern New Jersey, Jersey City and Newark and \$9.44 to New York and Brooklyn. By-product foundry coke is unchanged at \$9 to \$9.40, Newark or Jersey City, and \$10.06 to \$10.29, New York or Brooklyn.

## Cleveland

### Betterment in Demand for Steel Accompanied by Firmer Price Tone—Large Pig Iron Sales

CLEVELAND, Aug. 7.—Bookings of bars, shapes and plates in the first week of August show no letdown from the high average reached in the latter part of July, and in some cases an increase in orders and specifications is noticed. Shipments by district mills continue liberal and production is being carried along at a rate which is unusually satisfactory for this season of the year. While considerable tonnage is originating in the automobile industry, the diversified sources of recent business are indicative of a healthy situation among most manufacturing lines using steel. Concurrent with the betterment in demand is a further strengthening of prices. Mills are insisting that customers having the advantage of preferential prices must take the remaining tonnages on current contracts before the third quarter expires and this attitude is having the effect of imparting to the market an underlying tone of firmness.

Steel bars are quoted at 1.90c., Cleveland, although 1.85c. has not yet disappeared, while plates range from 1.85c. to 1.90c., Pittsburgh, with small miscellaneous lots bringing the latter figure. Shapes apparently are fairly well established at 1.90c., Pittsburgh.

The amount of inquiry before the trade presages a continuation of buying and of production on a scale which is considerably above normal for August. Greater activity is noted in structural steel, the outstanding event of the week having been the awarding of 4000 tons for bridge work in East Cleveland, which is a part of the local Union Terminal project. In general, fabricators in this district are run-

ning their shops on a curtailed basis, but reports from Michigan say that fabricating plants there are sufficiently well engaged to maintain operations at the present rate during the remainder of the summer.

The Wheeling & Lake Erie has purchased 1000 tons of 90-lb. rails from the leading interest.

A revival of interest in pig iron reported a week ago has developed into a somewhat formidable buying movement, sales in the past two weeks by Cleveland companies having aggregated more than 90,000 tons.

**Pig Iron.**—For the second consecutive week pig iron buying has been heavy, sales by Cleveland interests



having exceeded 50,000 tons. Apparently users are convinced that prices are scraping bottom and that there is a possibility of a strengthening in the market which may carry quotations to a higher level. Consequently, many melters are covering their requirements for the remainder of the year, although orders for spot shipment also are numerous. Business placed in Michigan has been the largest since early in the spring, foundry operations having been stimulated by the demand for castings from automobile companies which have recently announced new models. In fact, most of the tonnage bought in the past few weeks is destined for outside delivery, local consumers having been a minor factor in the market. In the first week of August the movement of iron on third quarter contracts increased beyond the average in July, and producers are confident that shipments this month will run ahead of those last month. So far as prices are concerned, there is a further tendency toward firmness, although no changes have been made. Local furnaces are so well fortified with third quarter orders that quotations for delivery to outlying competitive territories are reported to be from 25c. to 50c. a ton higher. In Michigan, foundry iron is selling at from \$17.50 to \$18, while iron for local delivery is steady at \$17.50, base furnace. Demand for low phosphorus iron is almost at a standstill.

#### Prices per gross ton at Cleveland:

N'th'n fdy., sil. 1.75 to 2.25.....	\$18.00
S'th'n fdy., sil. 1.75 to 2.25.....	21.50
Malleable .....	18.00
Ohio silvery, 8 per cent.....	28.00
Basic Valley furnace.....	16.00
Stand. low phos., Valley furn.....	26.50

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Iron Ore.**—Shipments from upper Lake ports in July totaled 8,980,859 tons, an increase of 4.32 per cent compared with July, 1927. For the entire year to Aug. 1, the movement of iron ore amounted to 23,275,984 tons, which is a decrease of 3,104,521 tons, or 11.77 per cent, compared with that in the same period of 1927.

**Bolts, Nuts and Rivets.**—Specifications and orders have been unusually good and have come from diversified sources, although automobile companies, agricultural implement manufacturers and jobbers have contributed the bulk. Production is being sustained at a rate regarded as above normal for midsummer. Quotations are firm and unchanged.

#### Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and struct. shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforc. steel bars.....	2.25c. to 2.75c.
Cold-fin. rounds and hex.....	3.65c.
Cold-fin. flats and sq.....	4.15c.
Hoops and bands.....	3.65c.
Cold-finished strip.....	5.95c.
Black sheets (No. 24).....	3.40c.
Galvanized sheets (No. 24).....	4.25c.
Blue ann'd sheets (No. 10).....	3.25c.
No. 9 ann'd wire, per 100 lb.....	\$2.85
No. 9 gal. wire, per 100 lb.....	3.30
Com. wire nails, base per keg.....	2.85

\*Net base, including boxing and cutting to length.

**Semi-Finished Steel.**—Demand from contract customers increased slightly the past week so that shipments are at a fairly high level. Furthermore, production is on a scale somewhat greater than usual for August. Sheet bars, billets and slabs are unchanged at \$32 to \$33, Cleveland.

**Warehouse Business.**—The volume of orders placed with local jobbers has been only fair, but the tonnage has been well diversified. Quotations are steady and unchanged.

**Reinforcing Bars.**—Several important jobs are still pending, but there have been no lettings of consequence. Prices are firm, with new billet bars quoted at 1.85c., mill, and rail steel stock at 1.75c., mill.

**Old Material.**—The market continues in a somewhat buoyant state, largely on account of the liberal amount of material which local steel plants are accepting on current contracts. However, forward buying is negligible. In some cases foundry items are fairly active, but in general the demand for these grades is light. Prices are showing strength, but have not changed.

Prices per gross ton delivered consumers' yards:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$13.00
No. 2 heavy melting steel.....	\$12.25 to 12.50
Compressed sheet steel.....	12.00 to 12.50
Light bundled sheet stamp'gs.....	11.50 to 11.75
Drop forge flashings.....	11.25 to 11.50
Machine shop turnings.....	7.00 to 7.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 13.75
No. 1 busheling.....	10.50 to 11.00
Pipes and flues.....	9.00 to 9.50
Steel axle turnings.....	12.50 to 13.00

Acid Open-Hearth Grades	
Low phos. forging crops.....	16.00 to 16.50
Low phos. billet, bloom and slab crops.....	17.00 to 17.50
Low phos. sheet bar crops.....	16.50 to 17.00
Low phos. plate scrap.....	15.50 to 16.00

Blast Furnace Grades	
Cast iron borings.....	9.00 to 9.25
Mixed bor'gs and short turn'gs.....	9.00 to 9.25
No. 2 busheling.....	9.00 to 9.25

Cupola Grades	
No. 1 cast.....	16.00 to 16.50
Railroad grate bars.....	11.00 to 12.00
Stove plate.....	12.00 to 12.50
Rails under 3 ft.....	16.75 to 17.25

Miscellaneous	
Railroad malleable.....	15.00 to 15.50
Rails for rolling.....	16.25 to 16.50

**Coke.**—A flurry in 48-hr. beehive heating coke has carried quotations up to \$2.85, Connellsville, with some few producers asking \$3. Connellsville foundry coke, however, is unchanged at \$3.50 to \$4.85, ovens. Users of by-product foundry coke are accepting moderate tonnages on present contracts. A local maker of by-product domestic coke is maintaining a schedule of \$6, delivered to Cleveland dealers, for egg size.

**Wire Products.**—Specifications against current contracts have been fairly good and fresh buying is of moderate proportions, although confined to small miscellaneous lots for prompt delivery. In some cases common wire nails are being sold below \$2.55, Pittsburgh, for shipment to users in outlying territories. However, most producers are refusing to accept orders at less than the regular

schedule. Otherwise, quotations are steady.

**Sheets.**—Bookings in the past week have been slightly better, although specifications from companies allied with the automobile industry are showing the effects of a slackening in production. Fresh buying is almost without exception limited to small tonnages to cover immediate needs. Prices are showing the greatest strength in many weeks, but no changes are reported. Black sheets are quoted at 2.65c., Valley, or 2.60c., Pittsburgh, galvanized at 3.40c., Pittsburgh, or 3.45c., Valley, and blue annealed at 1.90c. to 2c., Pittsburgh.

**Strip.**—Steel users are placing a fair volume of specifications but new buying is light. Hot-rolled strips are steady at 1.75c., Pittsburgh, for wide material. Producers are quoting 2.65c., Cleveland, on cold-rolled strips for lots of 3 tons or more.

### Detroit Scrap Market Dull

DETROIT, Aug. 7.—The market on old material in this district has been very quiet, with no sales involving large tonnage. Prices are the same as last quoted.

### German Mills Make 10 Year Contract for Wabana Ore

HAMBURG, GERMANY, July 21.—A 10-year contract for Wabana iron ore has been signed with the British Imperial Production Co., Ltd., by the Vereinigte Stahlwerke A. G., Gutehoffnungshütte, Friedrich Krupp A. G., Mannesmann Tube Co. and the Klockner Co. Under the terms of the contract, which expires in 1938, these German consumers will take 700,000 tons a year for the next three years, increasing to 800,000 tons in 1931, to 950,000 tons in 1932 and 1,150,000 tons in 1933. Of these totals, about 70 per cent will be taken by the Vereinigte Stahlwerke A. G. at Dusseldorf. The price of the ore fixed by the contract is 11s. 3d. (\$2.73) per ton, f.o.b. The British Imperial Production Co. guarantees the ore shipped to be 52 per cent iron content and 0.8 to 1.00 per cent phosphorus.

Australia ranked third in 1927 among the foreign markets of the United States for agricultural implements, according to a study prepared by Trade Commissioner Elmer G. Pauly, Melbourne, and just issued by the Department of Commerce. The growth of American trade in farm machinery during the past 10 years has been striking; the report shows. In 1917 Canada had the bulk of the Australian business in agricultural implements, while for the fiscal year 1926-27 American manufacturers obtained approximately 60 per cent of the Australian import business in these lines and Canada 16 per cent. Some 15 per cent went to the United Kingdom.

# San Francisco

## Steel Business Expanding Slightly—Pending Structural Steel Projects for 15,000 Tons

SAN FRANCISCO, Aug. 4 (*By Air Mail*).—Movement of steel products on the Pacific Coast is expanding slightly and from present indications bookings for the year will be close to the total of last year. The greatest activity at present is in the market for structural steel shapes and reinforcing bars, some fair-sized lots being placed this week.

The Columbia Steel Corporation, San Francisco, has announced that plans are being prepared for a \$2,500,000 tin plate mill to be erected at its Pittsburgh site with a capacity of 50,000 tons a year. This mill will be the first one to be erected on the Pacific Coast.

**Pig Iron.**—Bids were opened this week in Washington for 400 tons of iron for the Puget Sound Navy Yard. This is the largest inquiry to come before the trade in many weeks. Sales and inquiries involve only small lots. An importer of foreign material has unloaded 1700 tons of Indian iron, 100 tons of which will be reshipped to north Pacific ports, the rest to be taken by Los Angeles and San Francisco consumers. No changes in quotations are noted.

Prices per gross ton at San Francisco:

*Utah basic .....	\$25.00 to \$26.00
*Utah fdy., sil. 2.75 to 3.25 .....	25.00 to 26.00
**Indian fdy., sil. 2.75 to 3.25 .....	24.00 to 25.00

\*Delivered San Francisco.

\*\*Duty paid, f.o.b. cars San Francisco.

**Bars.**—Outstanding among the awards this week was 2288 tons for Drainage Improvement District No. 26 at Los Angeles, the general contract for which was secured by H. M. Baruch Corporation. The Pacific Coast Steel Co. was low bidder on 589 tons for the Big Dalton dam at Los Angeles and took 200 tons for a garage on Turk Street, San Francisco. New inquiries involve 140 tons for a hotel on Geary Street and 150 tons for an apartment on Green Street, San Francisco. Projects pending call for more than 5000 tons.

**Plates.**—Inquiries for plates are few and far between. The East Bay Municipal Utility District distributing system in Oakland, involving 7200 tons, bids on which will be opened Aug. 17, is the largest pending project. On Aug. 7 bids will be opened in

Washington for 131 tons of plates for the Mare Island Navy Yard. The General Petroleum Corporation, Los Angeles, is preparing plans for two 40,000 bbl. tanks and bids will be called for within the near future; approximately 400 tons is involved. While 2.25c., c.i.f., is general on desirable tonnages, some business is still going at 2.30c.

**Shapes.**—Several fair-sized structural awards were placed during the week; the largest was 1000 tons for a headframe, machine shop, hoist house and bins for the Consolidated Copper Co. at Kimberly, Nev., taken by the Kansas City Structural Steel Co. McClintic-Marshall Co. booked 700 tons for a hospital at Orange, Cal., while the Moore Dry Dock Co. took 280 tons of rail steel and shapes for a vault for the United States Mint in San Francisco. New inquiries call for 1200 tons for an apartment in San Francisco and 1100 tons for an office building in Oakland. Pending business now exceeds 15,000 tons. Plain material continues firm at 2.35c., c.i.f.

**Cast Iron Pipe.**—For the first time this year no awards of over 100 tons of cast iron pipe were reported. New inquiries developing during the week involved small lots only. Bids will be

opened next week on 416 tons for Tracy, Cal., and on 148 tons of 2 and 4-in. class B for Compton, Cal. The largest inquiry calls for 23,247 tons for Dallas, Tex., followed by 22,325 tons for the East Bay Municipal Utility District at Oakland.

**Standard Pipe.**—Little or no improvement in demand for standard pipe and oil country goods is noticed and the market remains exceptionally quiet. The only award of over 100 tons this week involved 109 tons of 1-in. extra heavy galvanized pipe for Los Angeles, placed with the Santa Fe Pipe & Supply Co.

**Coke.**—Demand for coke reflects the quiet condition prevailing in the pig iron market. A shipment of 4500 tons of English beehive and by-product coke is scheduled to arrive in port the latter part of the month. Most of this will apply against contracts placed some time ago. English by-product coke ranges from \$11.50 to \$13 a net ton, incoming dock, while beehive coke is quoted at \$16 a net ton.

**Warehouse Material.**—Some changes in out-of-stock prices in the San Francisco district have been made. No. 24 gage galvanized sheets have been reduced from 5.50c. to 5.40c.; blue annealed sheets, No. 10 gage, have been advanced from 3.90c. to 4c., while No. 24 gage black sheets have been advanced from 4.95c. to 5c. Warehouse interests report movement of stock during July as satisfactory.

# Birmingham

## Pig Iron Shipments Large and Stocks Are Being Reduced—Steel Demand Satisfactory

BIRMINGHAM, Aug. 7.—Pig iron sales vary little from the average of the past three weeks. The market is largely supported by a number of the smaller melters who prefer hand-to-mouth buying. The greater portion of third quarter iron is under contract. Selling is largely through quiet negotiations and very few inquiries are being received. Shipments have been large for several weeks and stocks in the district have been noticeably reduced. Quotations are unchanged from the \$15.50 base. Furnace operations have been the same for two weeks. Seventeen are in blast, eight on foundry, seven on basic, one on recarburizing iron and one on ferromanganese.

Prices per gross ton f.o.b. Birmingham dist. furnaces:

No. 2 fdy., 1.75 to 2.25 sil.	\$15.50
No. 1 fdy., 2.25 to 2.75 sil.	16.00
Basic .....	\$15.00 to 16.00

**Finished Steel.**—An active demand continues and mill schedules are being well sustained. Prices, though unchanged, show more firmness than at any time in the past several months. Sales executives anticipate satisfactory conditions for the remainder of the quarter. Sheets are in greater de-

mand and prices firmer. The amount of overhanging tonnage in the structural steel and reinforcing bar markets is considered fair, but sales have been slow for the past several days. The only structural steel award of any importance is 350 tons booked by the Ingalls Iron Works Co. for the Du Pont Rayon Co. at Old Hickory, Tenn. The five active open-hearths of the Tennessee company is one less than last week. Six continue in operation at Fairfield. The Gulf States Steel Co. is still working three at Alabama City.

**Cast Iron Pipe.**—The pressure pipe market has been lacking in important bookings for the past month. Miscellaneous orders in small lots have been coming in at a rate sufficient to keep operations up to average. Shipments have been good for several weeks. Soil pipe shops are showing a little more activity. Quotations continue to be made on a base of \$34 to \$35 on 6-in. and larger sizes.

**Coke.**—The market is still somewhat depressed and sales are light. All by-product plants are still in operation, though some of them are not

### Warehouse Prices, f.o.b. San Francisco

Base per Lb.

Plates and struc. shapes.....	3.15c.
Soft steel bars.....	3.15c.
Small angles, 3/8-in. and over.....	3.15c.
Small angles, under 3/8-in.....	3.55c.
Small channels and tees, 3/4-in. to 2 3/4-in.....	3.75c.
Spring steel, 1/4-in. and thicker.....	5.00c.
Black sheets (No. 24).....	5.00c.
Blue ann'd sheets (No. 10).....	4.00c.
Galv. sheets (No. 24).....	5.40c.
Struc. rivets, 1/2-in. and larger.....	5.65c.
Com. wire nails, base per keg.....	\$3.40
Cement c'd nails, 100-lb. keg.....	3.40



pushing production. Quotations are unchanged from \$5 base for both spot and contract.

**Old Material.**—The market has experienced a stronger demand during the past two weeks. Iron axle prices have been increased to \$21 to \$22 and No. 1 cast is being quoted at \$14, instead of \$14.25. Other quotations are the same.

*Prices per gross ton, deliv'd Birmingham dist. consumers' yards:*

Heavy melting steel.....	\$8.50 to	\$9.00
Scrap steel rails.....	11.00 to	11.50
Short shoveling turnings..	7.50 to	8.00
Cast iron borings.....		8.00
Stove plate.....		13.50
Steel axles.....	19.00 to	20.00
Iron axles.....	21.00 to	22.00
No. 1 railroad wrought...	10.00 to	10.50
Rails for rolling.....		13.00
No. 1 cast.....		14.00
Tramcar wheels.....	12.50 to	13.50
Cast iron carwheels.....	12.00 to	13.00
Cast iron borings, chem..	13.50 to	14.00

## Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and struc. shapes.....	3.25c.
Bars, soft steel or iron.....	3.15c.
Cold-fin. rounds, shafting, screw stock.....	3.75c.
Black sheets (No. 24).....	4.45c.
Galv. sheets (No. 24).....	5.25c.
Blue ann'l'd sheets (No. 10).....	3.60c.
Black corrug. sheets (No. 24).....	4.50c.
Galv. corrug. sheets.....	5.30c.
Structural rivets.....	3.75c.
Boiler rivets.....	3.75c.

Per Cent Off List

Tank rivets, $\frac{7}{8}$ -in. and smaller, 100 lb. or more.....	70
Less than 100 lb.....	65
Machine bolts.....	60
Carriage bolts.....	60
Lag screws.....	60
Hot-press. nuts, sq., blank or tapped, 200 lb. or more.....	60
Less than 200 lb.....	50
Hot-press. nuts, hex., blank or tapped, 200 lb. or more.....	60
Less than 200 lb.....	50

## St. Louis

### Slight Improvement in Pig Iron Demand—Scrap Dull and Weak—Sheets Firm

ST. LOUIS, Aug. 7.—Interest in pig iron on the part of consumers has developed moderate improvement. Shipments are holding up well, and requests for expedited delivery of early August contract quotas were reported. Sales were also larger, totaling approximately 7500 tons. Included was 2500 tons of basic, sold by the leading local producer to an East Side mill. Iowa implement dealers took 1800 tons, 500 of which was malleable. A machinery and engine builder in the district proper engaged 600 tons for third quarter shipment. The balance ranged from car lots to 200 tons, and was sold to melters in Missouri, Illinois and Iowa. Some fourth quarter inquiry of a tentative character has appeared.

*Prices per gross ton at St. Louis:*

No. 2 fdy., sil. 1.75 to 2.25, f.o.b.....	
Granite City, Ill.....	\$18.50 to \$19.00
N'th'n No. 2 fdy., deliv'd St. Louis.....	19.66
Southern No. 2 fdy., deliv'd.....	19.92
Northern malleable, deliv'd.....	19.66
Northern basic, deliv'd.....	19.66

Freight rates: 81c. Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Coke.**—Aside from a slight quickening in demand for domestic sizes, the coke situation remains unchanged. An advance in its price by a leading Chicago by-product interest has had a tendency to stimulate dealers in this area to cover their requirements. Shipments of foundry coke have diminished since the middle of July, but the movement of industrial coke, particularly to the Northwest and West, holds up well.

**Finished Iron and Steel.**—Distributors of iron and steel from stock report a somewhat better demand for building materials, notably standard structural shapes for small jobs and reinforcing concrete bars. Ties and bands are in better call from the South, and there has been fair ordering of materials for conditioning and repairing cotton gins and seed mills.

Call from the oil, lumber and bituminous coal industries continues dull. Sheets are holding their own, the leading district producer being on full production in all sheet departments, including galvanized. Some reordering of tin plates has taken place by cannery who underestimated their initial requirements. Numerous building projects are coming to light, but actual lettings are not of impressive proportions.

**Old Material.**—Scrap iron and steel remain in the depressed state which

has marked the past several weeks or months. Dealers report few new orders. The mills are taking only a few odd lots of specialties for mixing purposes, and gray iron foundries apparently have all the scrap they require at present. Quotable prices are unchanged, but it is doubtful if the figures shown could be realized on most items. In the immediate past there has been a better tone in rolling mill grades, with fair buying by interests specializing in reinforcing concrete material. Despite the depressed status of the market, the railroads continue to market heavily and to ship promptly. Railroad lists include: Baltimore & Ohio, 10,020 tons; Atchison, Topeka & Santa Fe, 7645 tons; Southern Pacific, 2855 tons; Mobile & Ohio, 23 cars; Pullman Co., 4 cars, and Chicago & Eastern Illinois, 10 cars.

*Dealers' buying prices, per gross ton, f.o.b. St. Louis district:*

Heavy melting steel.....	\$10.50 to \$11.00
No. 1 locomotive tires.....	11.75 to 12.00
Heavy shoveling steel.....	10.50 to 11.00
Miscell. stand.-sec. rails, includ'g frogs, sw'ches and guards, cut apart..	12.00 to 12.50
Railroad springs.....	13.00 to 13.50
Bundled sheets.....	7.75 to 8.25
No. 2 railroad wrought...	11.00 to 11.50
No. 1 busheling.....	9.00 to 9.50
Cast iron borings.....	8.25 to 8.75
Iron rails.....	13.00 to 13.50
Rails for rolling.....	13.00 to 13.50
Machine shop turnings...	7.00 to 7.50
Steel car axles.....	18.00 to 18.50
Iron car axles.....	25.50 to 25.75
Wrot. iron bars and trans.	18.25 to 18.75
No. 1 railroad wrought...	9.00 to 9.50
Steel rails, less than 3 ft.	15.00 to 15.50
Steel angle bars.....	11.75 to 12.25
Cast iron carwheels.....	13.00 to 13.50
No. 1 machinery cast.....	13.00 to 13.50
Railroad malleable.....	11.50 to 12.00
No. 1 railroad cast.....	13.00 to 13.50
Stove plate.....	11.00 to 11.50
Agricult. malleable.....	11.50 to 12.00
Relay. rails, 60 lb. and under.....	20.50 to 23.50
Relay. rails, 70 lb. and over.....	26.50 to 29.00

## Buffalo

### Pending Pig Iron Totals 10,000 Tons—Steel Mills Operating at 80 Per Cent or Better

BUFFALO, Aug. 7.—While there is a lull in pig iron buying, a real improvement in the market is noticeable. The melt has increased and stocks are rapidly dwindling. The heating industry is showing a very satisfactory increase, with resulting growth in consumption of iron. An inquiry from New England is for 5000 to 6000 tons of malleable and total inquiry of 10,000 tons is reported. There has been considerable placing of 100-ton and carload orders, and producers are very optimistic over prospects within the next 30 days. The price of \$17,

base Buffalo, apparently has not been broken on district business in months. Some of the Buffalo furnaces are making steady shipment of iron via the barge canal for storage at New Jersey points against prospective business in the East. The Hanna Furnace Co. will probably blow in another furnace some time this month. The new Hanna stack may go in blast in September. The stack of the Tonawanda Iron Corporation is out for relining and other repairs and will return to blast some time in October. Considerable stock of iron is on hand to tide over the American Radiator Co.'s needs during the interim.

*Prices per gross ton, f.o.b. furnace:*

No. 2 fdy., sil. 1.75 to 2.25.....	\$17.00
No. 2X fdy., sil. 2.25 to 2.75.....	17.50
No. 1X fdy., sil. 2.75 to 3.25.....	18.50
Malleable, sil. up to 2.25.....	17.50
Basic.....	\$16.50 to 17.00
Lake Superior charcoal.....	27.28

**Finished Iron and Steel.**—Demand for bars, shapes and plates is fair and operations of mills are around 80 per cent. Sheet prices are steadier, with 2.65c ruling for black sheets and 4c

## Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and struc. shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars.....	2.75c.
Cold-fin. flats, sq. and hex.....	4.45c.
Rounds.....	3.95c.
Cold-rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.20c.
Galv. sheets (No. 24).....	4.70c. to 5.05c.
Blue ann'l'd sheets (No. 10).....	3.70c.
Com. wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

for automobile body sheets. Sheet mill operations are at 85 to 88 per cent. Warehouse business during July was the best of any month since the beginning of the year. Wire demand is good, though the peak of demand for seasonal products has passed. Reinforcing bar makers are figuring a 375-ton school, and bids are in for the new Lockport, N. Y., filtration plant requiring 1000 tons of reinforcing bars. Plans are about completed for the new 26-story Rand Building.

**Old Material.**—The market has a slightly better tone, but no new buying of consequence has been done in two weeks. A few small orders for No. 1 machinery cast have been taken at \$14.50 to \$15, and a few similar transactions in steel rails at \$16 to \$16.50 are reported. Stove plate is dull; a consumer is still holding up shipments on sales made a month ago. Most of the larger plants are accepting shipments and the leading consumer continues to receive Detroit scrap by vessel at the rate of about five boatloads per month. This is

principally hydraulic compressed sheets.

*Prices per gross ton, f.o.b. Buffalo consumers' plants:*

Basic Open-Hearth Grades	
No. 1 heavy melting steel.	\$13.50 to \$14.00
No. 2 heavy melting steel.	12.00 to 12.50
Scrap rails	13.00 to 13.50
Hydraulic comp. sheets.	12.00 to 12.50
Hand bundled sheets.	8.00 to 8.50
Drop forge flashings.	12.00 to 12.50
No. 1 busheling.	12.00 to 12.50
Hvy. steel axle turnings.	12.00 to 12.50
Machine shop turnings.	7.00 to 7.50
No. 1 railroad wrought.	11.00 to 11.50
Acid Open-Hearth Grades	
R'l'd knuckles and couplers	15.00
R'l'd coil and leaf springs	15.00 to 16.00
Rolled steel wheels.	15.00
Low phos. billet and bloom ends	16.00 to 16.50
Electric Furnace Grades	
Hvy. steel axle turnings.	12.00 to 12.50
Short shov. steel turnings.	9.00 to 9.50
Blast Furnace Grades	
Short shov. steel turnings.	9.00 to 9.50
Short mixed borings and turnings	9.00 to 9.50
Cast iron borings.	9.00 to 9.50
No. 2 busheling.	9.00 to 9.25
Rolling Mill Grades	
Steel car axles.	15.50 to 16.00
Iron axles	19.50 to 20.00
Cupola Grades	
No. 1 machinery cast.	14.25 to 14.75
Stove plate	13.00 to 13.25
Locomotive grate bars.	11.25 to 11.75
Steel rails, 3 ft. and under.	16.00 to 16.50
Cast iron carwheels.	12.00 to 12.50
Malleable Grades	
Industrial	14.50
Railroad	14.50
Agricultural	14.50

## Boston

### Purchase of 500 Tons of Pig Iron by Providence Melter Brings Out Low Prices

BOSTON, Aug. 7.—Low prices were obtained last week by the Universal Winding Co., Providence, R. I., on 500 tons of No. 2X and an equal amount of No. 1X iron. The business was divided between a Buffalo furnace and one east of Buffalo. The purchase was made on a delivered basis. The No. 2X was sold at a delivered price close to \$20, while the No. 1X was sold at a price that figures back to less than \$16.50 a ton, Buffalo, allowing for low rail and water rates. Sales for the past week totaled approxi-

mately 4200 tons, of which the Mystic Iron Works booked 2200 tons. The remainder included small lots of Buffalo, New York State, western Pennsylvania and Alabama iron. A Springfield, Mass., foundry is asking for bids on 500 tons, another Massachusetts melter on an indefinite tonnage, which may run into five figures, and there are about a half dozen small inquiries; all of them, it is expected, will be closed within a week. One Buffalo interest reports stocks at the furnace as materially smaller than a month ago, but the shrinkage so far has failed to check price cutting by furnaces in that district.

*Foundry iron prices per gross ton deliv'd to most New England points:*

*Buffalo, sil. 1.75 to 2.25.	\$20.91 to \$21.41
*Buffalo, sil. 2.25 to 2.75.	21.41 to 21.91
†Buffalo, sil. 1.75 to 2.25.	19.78 to 20.28
†Buffalo, sil. 2.25 to 2.75.	20.28 to 20.78
East Penn., sil. 1.75 to 2.25.	23.15 to 23.65
East Penn., sil. 2.25 to 2.75.	23.65 to 24.15
Va., sil. 1.75 to 2.25.	25.71
Va., sil. 2.25 to 2.75.	26.21
Ala., sil. 1.75 to 2.25.	22.41 to 24.27
Ala., sil. 2.25 to 2.75.	22.91 to 24.77

Freight rates: \$4.91 all rail and \$3.78 rail and water from Buffalo; \$3.65 from eastern Pennsylvania; \$5.21 all rail from Virginia; \$6.91 to \$8.77 from Alabama.

\*All rail rate. †Rail and water rate.

**Coke.**—Specifications against last half by-product foundry coke contracts so far this month have been about on a par with those for July. The market is by no means active, however. The price quoted by the New England Coal & Coke Co. and the Providence Gas Co. remains at \$11 a ton, delivered within a \$3.10 freight rate zone. Small tonnages of Connellysville and New Jersey coke are

being sold in New England. The market for domestic fuel is rather flat.

**Cast Iron Pipe.**—The Warren Foundry & Pipe Co. has sold 100 tons of 6-in. pipe to the West Groton water district, West Groton, Mass., and 100 tons of 16-in. class C cement-lined pipe to Revere, Mass. The United States Cast Iron Pipe & Foundry Co. has sold 100 tons of 12-in. pipe to Lowell, Mass. No other municipal business has been closed, but private purchases are much larger than usual at this time of the year. Utility companies are taking good tonnages privately, including 20-in. and 30-in. pipe, and one is now negotiating for a fair-sized export tonnage. It is reported that Milford, Mass., has closed on 150 tons of 8-in. pipe, but details are lacking. The indications are the 19,000 ft. of 30-in. pipe for Massachusetts, under contract with the C. & R. Construction Co., will be steel instead of cast iron pipe. Most foundries are holding small pipe prices firmly, but one is making concessions. There is general price shading on large pipe. The range on 4-in. pipe is \$45.10 to \$46.10 a ton, delivered common Boston freight rate points, and on 6-in. to 12-in., \$41.10 to \$42.10. The usual \$5 differential is asked on class A and gas pipe.

**Old Material.**—The movement of old material out of New England in the past week was less than for any previous week this year. At prices offered by mills shippers cannot get their money back on any material that has to pass through yards. Activity centers in scrap for export, domestic trade being confined principally to machine shop turnings, machinery and textile cast. The demand for textile and machinery cast, however, is spotty. One New England consumer continues to take long bundled skeleton at \$6.50 to \$7 a ton, on cars shipping point. Prices on that material for Pennsylvania consumption are lower.

*Buying prices per gross ton, f.o.b. Boston rate shipping points:*

No. 1 heavy melting steel.	\$8.00 to \$8.50
Scrap T rails.	7.50 to 8.00
Scrap girder rails.	7.25 to 7.50
No. 1 railroad wrought.	8.50 to 9.00
No. 1 yard wrought.	7.00 to 7.50
Machine shop turnings.	5.00 to 5.50
Cast iron borings (steel works and rolling mill).	5.00 to 5.50
Bundled skeleton, long.	6.50 to 7.00
Forge flashings.	6.50 to 7.00
Blast furnace borings and turnings	5.00 to 5.50
Forge scrap	5.50 to 6.00
Shafting	11.50 to 12.00
Steel car axles.	14.50 to 15.00
Wrought pipe 1 in. in diameter (over 2 ft. long)	7.00 to 7.50
Rails for rolling.	9.50 to 10.00
Cast iron borings, chemical	9.50 to 10.00

*Prices per gross ton deliv'd consumers' yards:*

Textile cast	\$13.50 to \$14.00
No. 1 machinery cast.	14.00 to 14.50
No. 2 machinery cast.	12.50 to 13.50
Stove plate	10.00 to 10.50
Railroad malleable.	13.50 to 14.50

The Pittsburgh Steel Co. has bought four 1400-hp. powdered coal fired Ladd boilers for its new power plant at Monessen, Pa.; the Pressed Steel Car Co., two 600-hp. powdered coal fired Heine boilers for its Chicago works and the Weirton Steel Co. a 900-hp. waste heat Heine boiler from the International Combustion Corporation.

#### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates	3.365c.
Structural shapes—	
Angles and beams.	3.365c.
Tees	3.365c.
Zees	3.465c.
Soft steel bars, small shapes.	3.265c.
Flats, hot-rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway rounds	6.60c.
Norway, squares and flats.	7.10c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tie steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hex.	*3.45c. to 5.45c.
Squares and flats.	*3.95c. to 6.95c.
Toe calk steel.	6.00c.
Rivets, structural or boiler.	4.50c.
Per Cent Off List	
Machine bolts	50 and 5
Carriage bolts	50 and 5
Lag screws	50 and 5
Hot pressed nuts	50 and 5
Cold-punched nuts	50 and 5
Stove bolts	70 and 10

\*Including quantity differentials.



## Canada

### Pig Iron Sales Decline Slightly—30,000 Tons in Prospective Structural Steel Contracts

TORONTO, ONT., Aug. 7.—Foundry and malleable pig iron sales in the Canadian markets have shown a slight decline. The daily melt, however, is holding at the former high level, and the slump in business is chiefly due to the fact that spot buyers are covered for the present and no advance buying is being done. July sales compared favorably with those of other months this year. Production of pig iron in Canada continues at a high rate, with eight blast furnaces blowing. Price shading is reported in the Montreal district.

#### Prices per gross ton:

Delivered Toronto	
No. 1 fdy., sil. 2.25 to 2.75	\$23.10 to \$23.60
No. 2 fdy., sil. 1.75 to 2.25	23.10 to 23.60
Malleable	23.10 to 23.60

Delivered Montreal	
No. 1 fdy., sil. 2.25 to 2.75	24.50 to 25.00
No. 2 fdy., sil. 1.75 to 2.25	24.50 to 25.00
Malleable	24.50 to 25.00
Basic	23.50 to 24.00

Imported Iron, Montreal Warehouse	
Summerlee	33.50
Carron	33.00

**Structural Steel.**—While no large tonnage contracts featured business in this market during the week, fabricators report a steady flow of small orders. For the Industrial Alcohol Co.'s plant addition at Corbyville, Ont., 800 tons of structural steel and 300 tons of reinforcing bars were placed; 400 tons of structural steel has been ordered for the addition to

the plant of the American Pad & Textile Co., Chatham, Ont. A few small tonnages were closed. Prospective business involves about 35,000 tons of structural steel.

**Old Material.**—A general slump in business has occurred in both Toronto and Montreal markets during the past week or 10 days. Consumers are showing little interest and are ordering supplies only when demands dictate. Current sales, few in number, are confined to small tonnages. Trading between dealers has also declined. Prices are showing a softening tendency in the Toronto district, but revisions have not been made in dealers' buying price lists.

#### Dealers' buying prices:

	Per Gross Ton	
	Toronto	Montreal
Heavy melting steel	\$9.00	\$7.00
Rails, scrap	10.00	9.00
No. 1 wrought	9.00	11.00
Machine shop turnings	7.00	5.00
Boiler plate	7.00	6.00
Heavy axle turnings	7.50	6.50
Cast borings	7.50	5.00
Steel turnings	7.00	5.50
Wrought pipe	5.00	5.00
Steel axles	14.00	20.00
Axles, wrought iron	16.00	22.00
No. 1 machinery cast	16.00	16.00
Stove plate	13.00	13.00
Standard carwheels	16.00	16.00
Malleable	13.00	13.00
	Per Net Ton	
	Toronto	Montreal
No. 1 machinery cast	15.00	....
Stove plate	9.00	....
Standard carwheels	13.00	....
Malleable scrap	13.00	....

## Cincinnati

### Pig Iron Market Dull, But Scrap Market Shows Signs of Recovery

CINCINNATI, Aug. 7.—The pig iron market is still rather dull. The Marmon Motor Co. inquiry for 3200 tons of Northern iron is yet under consideration, with belief that it will be closed within the week. The Hooven, Owens, Rentschler inquiry is now reported as covered. It was for 5000 tons and went to a Northern furnace. A local distributor reports sales of two lots of silvery iron, 300 tons and 250 tons, respectively, with about 650 tons of Northern foundry iron. Another sale of 300 tons of malleable was reported, and around 200 tons of Northern iron. Sales of smaller lots down to carloads were fairly numerous.

#### Prices per gross ton, deliv'd Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25	\$19.89
So. Ohio malleable	\$20.14 to 20.89
Ala. fdy., sil. 1.75 to 2.25	19.19
Ala. fdy., sil. 2.25 to 2.75	19.69
Tenn. fdy., sil. 1.75 to 2.25	19.19
So'th'n Ohio silvery 8 per cent	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

**Old Material.**—The scrap market has developed somewhat from its sluggish condition and some prices have

strengthened. Light inquiry has brought some sales at current prices and better. Dealers are loath to sell in large lots at present prices and this has brought higher bids from concerns seeking to buy. Most dealers are adding 25c. to 50c. to current quotations. Small orders have been received in car lots to 1000 tons, but dealers hesitate to sell on a market that is beginning to show signs of life.

#### Dealers' buying prices per gross ton, f.o.b. cars, Cincinnati:

Heavy melting steel	\$10.75 to \$11.25
Scrap rails for melting	10.75 to 11.25
Loose sheet clippings	8.25 to 8.75
Bundled sheets	9.00 to 9.50
Cast iron borings	8.00 to 8.25
Machine shop turnings	7.25 to 7.75
No. 1 busheling	10.00 to 10.50
No. 2 busheling	6.00 to 6.50
Rails for rolling	12.50 to 13.00
No. 1 locomotive tires	12.75 to 13.25
No. 1 railroad wrought	10.00 to 10.50
Short rails	15.75 to 16.25
Cast iron carwheels	11.00 to 11.50
No. 1 machinery cast	15.00 to 15.50
No. 1 railroad cast	12.75 to 13.25
Burnt cast	7.50 to 8.00
Stove plate	8.25 to 8.75
Brake shoes	9.50 to 10.25
Railroad malleable	11.50 to 12.00
Agricultural malleable	10.50 to 11.00

## REINFORCING STEEL

**E**XCEPT for a drainage improvement project at Los Angeles which took 2300 tons, the total of 6800 tons of reinforcing steel reported placed in the last week was principally in small tonnages. Inquiries, amounting to 3550 tons, included 1000 tons for a water filtration plant at Lockport, N. Y. Awards follow:

PORT NEWARK, N. J., 150 tons, terminal improvement work, to Concrete Steel Co.

HARRISON, N. J., 150 tons, factory building for Otis Elevator Co., to Igoo Brothers.

NEW BRUNSWICK, N. J., 150 tons, building for Reichart Cocoa & Chocolate Co., to E. T. Edwards, Columbia, Pa.

PITTSBURGH, 100 tons, Boulevard of the Allies, to Electric Welding Co.

EVANSTON, ILL., 174 tons of rail steel bars, apartment building, to Barton Spiderweb System, Inc.

CHICAGO, 277 tons, factory building, to Barton Spiderweb System, Inc.

CHICAGO, 475 tons, apartment hotel at 6240 Sheridan Road, to Barton Spiderweb System, Inc.

CHICAGO, 200 tons rail steel bars, apartment building at East Seventy-third Street and Lake Michigan Drive, to Calumet Steel Co.

CHICAGO, 600 tons of rail steel bars, garage to Barton Spiderweb System, Inc.

CHICAGO, 160 tons, public school building, from A. and E. Anderson, to Barton Spiderweb System, Inc.

CHICAGO, 390 tons, two public school buildings, to Concrete Engineering Co.

CHICAGO, 500 tons of rail steel bars, caissons for Mercantile Mart, to Inland Steel Co.; formerly reported as 200 tons.

CHICAGO, 250 tons rail steel bars, garage at State and Eleventh Streets, to Calumet Steel Co.

STATE OF ILLINOIS, 400 tons of rail steel bars, road work, to Calumet Steel Co.

EVERETT, WASH., 275 tons, department store, to Pacific Coast Steel Co.

SEATTLE, 130 tons, Grimshaw garage, to Northwest Steel Rolling Mills.

LOS ANGELES, 2288 tons, Drainage Improvement District No. 26, to H. M. Baruch Corporation.

SAN FRANCISCO, 200 tons, garage, Jones and Turk Streets, to Pacific Coast Steel Co.

SAN FRANCISCO, 121 tons, bakery, Alameda and Bryant Streets, to Gunn, Carle & Co.

#### Reinforcing Bars Pending

BOSTON, Charlestown district, 500 tons, H. P. Hood & Sons milk plant.

NEW YORK, 600 tons, warehouse for Western Union Telegraph Co.

NEW YORK, 350 tons, sewer work in Queens; Necaro Construction Co., general contractor.

ROCKAWAY BEACH, N. Y., 325 tons, boardwalk; Montrose Contracting Co., general contractor.

JONES BEACH, N. Y., 850 tons, causeway; C. H. Earle, general contractor.

KEARNY, N. J., 300 tons, buildings 51 and 52 for Western Electric Co.

BUFFALO, 150 to 375 tons, school No. 80; being figured.

LOCKPORT, N. Y., 1000 tons, city filtration plant; bids in.

GALESBURG, ILL., 190 tons, reservoir.

SAN FRANCISCO, 140 tons, hotel, Geary and Maggie Streets; bids being taken.

VENTURA, CAL., 118 tons, Bardsdale bridge; general contract to Claude Fisher, Los Angeles.

# July Exceeds June in Ingot Production

Compared with July, 1927, It Is Up 19 Per Cent—Gain of Seven Months Over 1927 Nearly 1,600,000 Tons

PRODUCTION in July of open-hearth and Bessemer steel ingots in the United States, as indicated by the returns made to the American Iron and Steel Institute, was nearly 2 per cent more than in June, whereas a

year ago the July output fell off over 8 per cent from that of June. Counting out July 4 and the five Sundays, July is regarded as having 25 full working days, as was the case for July, 1927. On the basis of working

days, as shown in the accompanying table, the July output of 152,463 tons a day was nearly 6 per cent better than the daily rate of June and 19 per cent ahead of the daily rate of July, 1927. July of last year showed an average daily recession of 4½ per cent from June, comparing with the 6 per cent expansion this year.

The indicated total for seven months, 28,604,000 tons, is 1,592,934 tons ahead of the seven months of 1927, or practically 6 per cent.

SEVEN MONTHS' PRODUCTION OF STEEL INGOTS (GROSS TONS)

Months	1927					1928				
	Reported by Companies Which Made 94.68 Per Cent of the Steel Ingots in 1927	Calculated Monthly Output	No. of Working Days	Approximate Daily Output	Reported by Companies Which Made 94.68 Per Cent of the Steel Ingots in 1927	Calculated Monthly Output	No. of Working Days	Approximate Daily Output		
	Open-Hearth	Bessemer	All Companies	All Companies	Open-Hearth	Bessemer	All Companies	All Companies		
Jan. ....	3,042,133	545,596	3,789,874	26	145,764	3,280,247	498,746	3,991,332	26	153,513
Feb. ....	3,043,492	565,226	3,812,046	24	158,835	3,308,728	521,366	4,045,304	25	161,812
Mar. ....	3,702,660	590,709	4,535,272	27	167,973	3,700,411	567,309	4,507,520	27	166,945
Apr. ....	3,341,750	565,440	4,127,335	26	158,744	3,509,637	564,039	4,302,573	25	172,103
May ....	3,273,593	557,785	4,047,251	26	155,663	3,397,631	581,949	4,203,190	27	155,674
June ....	2,823,107	486,053	3,495,609	26	134,446	3,016,487	527,351	3,742,964	26	143,960
July ....	2,596,349	436,883	3,204,135	25	128,165	3,075,247	533,550	3,811,573	25	152,463
7 Months....	21,823,084	3,747,692	27,011,522	180	150,064	23,288,388	3,794,310	28,604,456	181	158,036

## Mining Engineers Active

Will Inspect Iron Mining at Wabana and Menominee—Metals and Petroleum Also to Be Discussed

NO less than six meetings will be held this fall by various sections of the American Institute of Mining and Metallurgical Engineers. These will replace the usual fall meeting which has been held for many years past, wherein all the members of the institute were invited to inspect some interesting region distant from headquarters.

The first gathering this year will assemble at the Copley-Plaza Hotel, Boston, Wednesday, Aug. 29, for a three-day discussion of geophysics, the scientific equivalent of the dowsing rod or water finder. On Sept. 1 the party will leave for a two-weeks' tour of Newfoundland and Nova Scotia, going by steamer and returning by rail. Visits will be made to the great Wabana iron mines, the new Buchans mine, the submarine coal mines at Glace Bay, the Steel Works at Sydney, the Malagash salt mine, and one of the famous gold mines of Nova Scotia.

Assembling at Crystal Inn, Crystal Falls, Mich., the newly organized Iron and Steel Division will inspect the Menominee Range on Sept. 7 and 8. This will be a joint meeting with the Lake Superior Mining Institute. Visits will be made to mines in the vicinity of Alpha, Caspion, Iron River and Iron Mountain. Complete details have been given in THE IRON AGE, July 26, page 254.

Sept. 10 to 15 (the week of the Steel Treating Show on the Pacific Coast), the Southern California section will meet at the Biltmore Hotel, Los Angeles, Cal. Discussions will be conducted on mining, milling, flotation, smelting and refining of gold, copper and zinc ores.

Institute of Metals Division will meet with the American Society for Steel Treating during the International Steel Exposition in Philadelphia.

Headquarters will be at the Benjamin Franklin Hotel. Titles of the papers so far promised were printed in THE IRON AGE, July 26, page 254.

A fall meeting of the Petroleum Division will be held at Tulsa, Okla., on Oct. 18 and 19. Reduced fares to that point may be had, since the International Petroleum Exposition will convene immediately thereafter. Papers will be devoted to the engineering problems of oil production.

## July Ore Shipments Larger—Year's Total Lower

Iron ore shipments from the Lake Superior region amounted to 8,980,859 tons in July, an increase of 371,777 tons or 4.32 per cent above the 8,609,082 tons shipped from upper Lake ports in July, 1927. The total

for the season to Aug. 1 declined 3,104,521 tons or 11.77 per cent, compared with the 26,380,505 tons shipped to Aug. 1, 1927. The table gives in detail the shipments for July and for the season in 1928 and 1927 in gross tons.

## Bureau of Standards Consolidates Publications

In the past the Bureau of Standards has issued the results of its scientific papers in two series of volumes, namely, "Scientific Papers" and "Technologic Papers." To date each of these publications has run to 22 volumes and the total comprises some 942 research papers.

Commencing with July, however, the two series will be consolidated in a single magazine, issued monthly and entitled "Bureau of Standards Journal of Research." The union of pure and applied science in one journal will, it is believed, tend to bridge the gap between the two fields, and by so much shorten the lag between discovery and its application.

The subscription price is \$2.75 per year, and remittances should be made direct to the Superintendent of Documents, Government Printing Office, Washington.

MOVEMENT OF LAKE SUPERIOR ORE

Port			To Aug. 1	
	July, 1928	July, 1927	1928	1927
Escanaba .....	904,613	931,347	2,372,815	2,793,646
Marquette .....	574,586	475,018	1,449,834	1,405,646
Ashland .....	1,023,854	1,053,368	2,892,629	3,362,554
Superior .....	2,523,721	2,492,338	6,477,514	7,314,772
Duluth .....	2,970,629	2,669,875	7,359,541	8,563,747
Two Harbors .....	983,456	987,136	2,543,651	2,940,140
Total .....	8,980,859	8,609,082	23,275,984	26,380,505
Increase .....	371,777			
Decrease .....			3,104,521	



# Non-Ferrous Metal Markets

**Copper Quiet But Firm, Tin Sales Large, Lead Slightly Easier, Zinc Active and Higher.**

**Copper.**—More interest in September copper is being shown by domestic consumers this week and a fair amount of business has been placed, sales Monday and Tuesday being quite satisfactory. One large consumer is reported to have placed fairly liberal orders. It is estimated that about one-third of the September requirements of domestic users has been contracted for. Quotations continue unchanged and very firm at 14.75c., delivered in the Connecticut Valley, with

THE WEEK'S PRICES. CENTS PER POUND FOR EARLY DELIVERY						
	Aug. 7	Aug. 6	Aug. 4	Aug. 3	Aug. 2	Aug. 1
Lake copper, New York.....	14.75	14.75	14.75	14.75	14.75	14.75
Electrolytic copper, N. Y.*.....	14.50	14.50	14.50	14.50	14.50	14.50
Straits tin, spot, N. Y. ....	47.87½	48.00	....	47.62½	47.62½	48.00
Lead, New York.....	6.20	6.20	6.20	6.20	6.20	6.20
Lead, St. Louis.....	6.00	6.00	6.00	6.00	6.00	6.00
Zinc, New York.....	6.60	6.60	6.55	6.55	6.55	6.55
Zinc, St. Louis.....	6.25	6.25	6.20	6.20	6.20	6.20

\*Refinery quotation; delivered price ¼c. higher.

14.87½c. the price in the Middle West. Lake copper is fairly active with sales being made for October delivery and with quotations unchanged at 14.75c. to 14.87½c., delivered. Demand from abroad continues in moderate volume, all business being done at 15c., c.i.f. European ports, a quotation which was established May 25. Purchases are estimated at about 1000 tons a day thus far this month.

**Tin.**—Because of a bank holiday in London yesterday, Monday, and the closing of that market also on Saturday, consumers came into the market on Friday and during the week, making fairly liberal purchases and bringing the total for the week to about 1500 tons. These transactions cov-

ered spot and August delivery, showing decidedly that consumers have allowed their stocks to dwindle and are buying from hand to mouth. Disappointment was aroused by the American deliveries into consumption of only 5545 tons during July. This is explained as caused by the large amount of metal left on dock. With large supplies of spot metal, it appears strange that nearby positions should demand the premiums they do. The fact that 400 tons was sold Tuesday at Singapore is regarded as significant in reflecting large supplies of the metal. On Monday the market was dull and uninteresting owing to the holiday in London and Tuesday the market was also quiet with spot Straits tin quoted at 47.87½c., New York.

## Metals from New York Warehouse Delivered Prices Per Lb.

Tin, Straits pig.....	50.00c. to 51.00c.
Tin, bar .....	52.00c. to 53.00c.
Copper, Lake .....	15.75c.
Copper, electrolytic .....	15.50c.
Copper, casting .....	14.75c.
Zinc, slab .....	7.25c. to 7.75c.
Lead, American pig.....	7.25c. to 7.75c.
Lead, bar .....	9.25c. to 10.25c.
Antimony, Asiatic.....	12.25c. to 12.75c.
Aluminum No. 1 ingots for remelting (guar'nt'd over 99% pure) .....	25.00c. to 26.00c.
Alum. ingots, No. 12 alloy.....	24.00c. to 25.00c.
Babbitt metal, commercial grade.....	30.00c. to 40.00c.
Solder, ½ and ½.....	32.50c. to 33.50c.

## Metals from Cleveland Warehouse Delivered Prices Per Lb.

Tin, Straits pig.....	53.00c.
Tin, bar .....	57.00c.
Copper, Lake .....	14.85c.
Copper, electrolytic .....	14.85c.
Copper, casting .....	14.00c.
Zinc, slab .....	8.00c.
Lead, American pig.....	7.00c.
Antimony, Asiatic.....	16.00c.
Lead, bar .....	9.50c.
Babbitt metal, medium grade.....	18.50c.
Babbitt metal, high grade.....	56.50c.
Solder, ½ and ½.....	31.25c.

## Rolled Metals from New York or Cleveland Warehouse

### Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass .....	19.25c.
Copper, hot rolled.....	24.00c.
Copper, cold rolled, 14 oz. and heavier .....	25.75c.
<b>Seamless Tubes—</b>	
Brass .....	24.12½c.
Copper .....	25.00c.
Brazed Brass Tubes.....	27.25c.
Brass Rods .....	17.00c.

### From New York Warehouse

### Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks .....	10.00c. to 10.50c.
Zinc sheets, open.....	11.00c. to 11.50c.

## Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products have not changed since May 25. Zinc sheets are still quoted at 9.75c., base, following the advance of July 30 and lead full sheets are unchanged.

### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over

<b>Sheets—</b>	
High brass .....	19.25c.
Copper, hot rolled.....	23.50c.
Zinc .....	9.75c.
Lead (full sheets).....	10.00c. to 10.25c.
<b>Seamless Tubes—</b>	
High brass .....	24.12½c.
Copper .....	25.00c.
<b>Rods—</b>	
High brass .....	17.00c.
Naval brass .....	19.75c.
<b>Wire—</b>	
Copper .....	16.75c.
High brass .....	19.75c.
Copper in Rolls.....	22.50c.
Brazed Brass Tubing.....	27.25c.

### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also to St. Louis on shipments to points west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide .....	33.00c.
Tubes, base .....	42.00c.
Machine rods .....	34.00c.

## Old Metals, Per Lb., New York

Buying prices represent what large dealers are paying for miscellaneous lots from smaller accumulators and selling prices are those charged customers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible .....	12.625c.	14.00c.
Copper, hvy. and wire .....	12.50c.	13.50c.
Copper, light and bottoms .....	10.75c.	12.00c.
Brass, heavy .....	7.00c.	8.25c.
Brass, light .....	6.00c.	7.50c.
Hvy. Machine composition .....	9.75c.	11.00c.
No. 1 yel. brass turnings .....	8.75c.	9.50c.
No. 1 red brass or compos. t'ings .....	9.00c.	10.00c.
Lead, heavy .....	5.00c.	5.375c.
Lead, tea .....	3.75c.	4.25c.
Zinc .....	3.00c.	3.50c.
Sheet aluminum .....	12.50c.	14.50c.
Cast aluminum .....	11.75c.	13.50c.

## Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Consumers' Doors in City Limits)

<b>Sheets—</b>		Base per Lb.
High brass .....	19.25c.	
Copper, hot rolled.....	23.50c.	
Copper, cold rolled, 14 oz. and heavier .....	25.75c.	
Zinc .....	10.00c.	
Lead, wide .....	9.75c.	
<b>Seamless Tubes—</b>		
Brass .....	25.62½c.	
Copper .....	26.50c.	
Brazed Brass Tubes.....	27.25c.	
Brass Rods .....	17.00c.	

Prices at London today were as follows: Spot standard, £213 7s. 6d.; future standard, £211 17s. 6d. and spot Straits £215 17s. 6d. The Singapore price today was £216. Arrivals thus far this month have been only 410 tons with 6241 tons reported afloat.

**Lead.**—With the exception of a slightly easier situation in the West, prices are fairly firm. Sales of spot and August metal have been made at St. Louis at 5.97½c. to 6c. In the East, quotations continue firm and unchanged at 6.20c., New York, this being the contract price of the leading interest. Cable makers are reported as the heaviest buyers, but a fair amount of business is being done in other directions. One authority points out that so far this year business is reported larger than for the same period a year ago.

**Zinc.**—Galvanizers have been fairly liberal buyers the past week and sales in other directions are reported as satisfactory. The trend in prices has been gradually upward for some time and yesterday (Monday) a higher level was established at 6.25c., St. Louis, or 6.60c., New York, an advance of five points. One important factor is the information which producers are now obtaining from the American Zinc Institute as to the condition of forward orders. This is similar to information which copper producers have been obtaining for some time. The effect is to strengthen, or at least to more wisely guide, producers. Ore prices at Joplin were unchanged at \$40 last week. Sales are given as about 10,000 tons with production about 12,500 tons and shipments 11,500 tons. Stocks are reported as approximately 37,000 tons. The continued high production of ore is commented upon rather unfavorably.

**Antimony.**—Chinese metal is unchanged at 10c. for spot and 10.25c. for futures, duty paid, New York. The Chinese market is higher today, futures being quoted at 10.37½c.

**Nickel.**—Quotations are unchanged for wholesale lots of ingot nickel at 35c., with shot nickel at 36c. and for electrolytic nickel at 37c.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, continues at 23.90c., delivered.

#### Non-Ferrous Metals at Chicago

CHICAGO, Aug. 7.—Sales are spotty but larger in total volume than a week ago. Prices for copper and zinc are advanced. The old metal market is quiet.

Prices, per lb., in carload lots: Lake copper, 15.25c.; tin, 49c.; lead, 6.10c.; zinc, 6.40c.; in less-than-carload lots, antimony, 11c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.50c.; yellow brass, 7.25c.; lead pipe, 4.75c.; zinc, 3.50c.; pewter, No. 1, 30c.; tin foil, 36.25c.; block tin, 45.25c.; aluminum, 12c.; all being dealers' prices for less-than-carload lots.

## Railroad Equipment

### Pennsylvania Orders 550 Steel Refrigerator Cars—Great Northern Will Buy 2500 Cars and 2000 Underframes

**A**N order for 550 all-steel express refrigerator cars for the Pennsylvania and an inquiry from the Great Northern for 2500 freight cars and 2000 underframes made the past week one of the most active of summer in the railroad equipment market. Other transactions of the week, details of which follow, were mostly of a minor nature:

Pennsylvania Railroad has ordered 200 all-steel passenger train refrigerator cars from American Car & Foundry Co., 200 from Pressed Steel Car Co., 100 from Pullman Car & Mfg. Corporation and 50 from General American Car Co.

Great Northern Equipment Co. is receiving bids on 500 50-ft. box cars, 500 52-ft. flat cars, 500 40-ft. coal cars, 1000

all-steel ore cars and 2000 steel underframes for box cars.

United States Navy Department has ordered two gondola cars from Pressed Steel Car Co.

Chicago, Burlington & Quincy will build 33 steel suburban passenger cars at its Aurora, Ill., shops.

Nevada Consolidated Copper Co. will buy 20 Ingoldsby-type ore cars of 60 tons capacity.

Lehigh & New England has ordered three steel underframe caboose cars from Pressed Steel Car Co.

International Railways of Central America have ordered two Mikado type locomotives from Baldwin Locomotive Works.

Manila Railroad, P. I., has ordered four three-cylinder Mikado type locomotives from Baldwin Locomotive Works.

## To Design Steel Plant for Siberia

### Chicago Engineers to Lay Out Soviet Project for Making Rails, Shapes, Bars and Plates

CHICAGO, Aug. 4.—The following dispatch was cabled by the Chicago *Daily News* correspondent in Moscow, John Gunther.

"H. J. Freyn, president Freyn Engineering Co., Chicago, left Moscow today with four of his engineers, after having completed negotiations for the construction of a new iron and steel plant at Kuznetzk, Siberia. As approved by the State Institution for the Projection of New Metal Works, the Soviet body charged with such engineering concessions, the projects call for a plant capable of producing initially 400,000 tons of rails, structural steel, bars and plates annually. This will be one of the largest factories in Siberia.

"Mr. Freyn said that the plant will be designed by his firm on entirely American lines, making full utilization of American practical experience and equipment. During his stay here Mr. Freyn also completed negotiations for the extension of his original contract of May, 1927, whereby technical assistance is accorded for five years to the Russian iron and steel industry. The present amplification agreements calls for a special Russian department of the Freyn Engineering Co. to be stationed at Leningrad. This establishment is to be on a permanent basis as a component part of the state institution for projecting new metal works. 'This agreement authorizes consultation with us on all problems connected with the iron and steel industry throughout Russia, the preparation and construction of drawings and the supervision of field construction of new and on remodeled iron and steel plants' Mr. Freyn said. He added that his relations with both the government officials and the engineers

were harmonious and effective. 'Since the Donetz trial (of coal mine officials and employees charged with subversive sabotage) the tendency is increasing to trust and cooperate with American engineers' said Mr. Freyn."

### Reduced Cash Discount Generally Adopted

Manufacturers of sheet steel and cold-rolled strips have generally followed the lead of the American Rolling Mill Co. in reducing the discount for cash in 10 days on those products from 2 per cent to one-half of 1 per cent, effective from Oct. 1, next. Not a few manufacturers have adopted the practice of attaching this announcement as a rider to current invoices as a means of informing customers of the change.

Some doubt exists as to whether tin mill black plate will be affected by the change in the cash discount, because no definite announcement yet has been made. It is believed, however, that all sheet, tin and strip mill products will go to one-half of 1 per cent for cash in 10 days, and some go so far as to say that eventually all products of the industry will take that discount.

Announcement has been made that hoop steel, which has been sold at 1 per cent off in 10 days, as of Oct. 1, goes to one-half of 1 per cent discount for cash. A change in the cash discount on wire products from 2 per cent in 10 days and net in 60 days probably would encounter some difficulty, since mill distribution goes down through jobbers and retailers and nearer to ultimate consumers than other steel products.



## Fabricated Structural Steel

### Mississippi River Barges Will Take 11,000 Tons—New Projects Bulk Large While Awards Are Light

WITH 11,000 tons needed for 98 barges for the Mississippi River Commission and 6300 tons for a railroad bridge over Newark Bay, new projects totaled 52,000 tons. Five buildings in Chicago will require from 2000 to 2500 tons each, and two bridges elsewhere will take 4000 tons each. Of the following awards, which amount to 22,500 tons, the largest is 4000 tons for several railroad bridges for the Cleveland Union Terminals Co.

DURHAM, N. H., 250 tons, chemical building, to Eastern Bridge & Structural Co.  
BOSTON, 155 tons, administration building for Simmons College, to New England Structural Co.

SPRINGFIELD, MASS., 600 tons, transmission towers for New England Power Construction Co., to American Bridge Co.

HARTFORD, CONN., 800 tons, Horace Bushnell Memorial Hall, to an unnamed fabricator.

NEW YORK, 2700 tons, Seward Park High School, to American Bridge Co.

BROOKLYN, 2500 tons, Samuel Tilden High School, to Bethlehem Fabricators, Inc.  
WEEHAWKEN, N. J., 1000 tons, ferry slips and bridges for New York, Ontario & Western Railroad, to Belmont Iron Works.

PHILADELPHIA, 118 tons, Ashdale Street highway bridge, to Phoenix Bridge Co.

AMBRIDGE, PA., 425 tons, two schools, Harmony school district and Ambridge Borough, to American Bridge Co.

DURHAM, N. C., 550 tons, buildings for Duke University, to Virginia Bridge & Iron Co.

SOUTHERN RAILWAY, 550 tons, bridge at Lumber City, Ga., to Virginia Bridge & Iron Co.

BUFFALO, 1000 tons, new telephone building, to Lackawanna Steel Construction Co.

NASHVILLE, TENN., 350 tons, for Du Pont Rayon Co., to Ingalls Iron Works Co.

FORT MYERS, FLA., 125 tons, bridge, to Ingalls Iron Works Co.

BEAUMONT, TEX., 200 tons, additions to junior high schools, to Orange Car & Steel Co., Orange, Tex.

CLEVELAND, 4000 tons, bridges for New York Central and Nickel Plate railroads, let by Union Terminals Co. to McClintic-Marshall Co.

MUNCIE, IND., 500 tons, school, to Indiana Bridge Co., local.

EVANSTON, ILL., 105 tons, high school, to Wendnagel & Co., Chicago.

CHICAGO, 130 tons, coal trestle for Blackstone Avenue power plant, to Midland Structural Steel Co., local.

CHICAGO, 830 tons, public school, to Vanderkloot Steel Works, local.

CHICAGO, 126 tons, building for American Forge Co., to Gage Structural Steel Co., local.

CHICAGO, 480 tons, McCrory store, to McClintic-Marshall Co.

STATE OF ILLINOIS, 300 tons, five highway bridges, to Continental Bridge Co., Chicago.

ST. LOUIS, 1000 tons, building for Century Electric Co., to Mississippi Valley Structural Steel Co.

TOPEKA, KAN., 1000 tons, viaduct for Santa Fe Railroad, to American Bridge Co.

OKLAHOMA CITY, OKLA., 600 tons, bridge, to McClintic-Marshall Co.

KIMBERLY, NEV., 1000 tons, head frame, hoist house, machine shop and bins for Consolidated Copper Co., to Kansas City Structural Steel Co.

DARRINGTON, WASH., 100 tons, bridge repairs for Northern Pacific, to Pacific Car & Foundry Co.

ORANGE, CAL., 700 tons, hospital, to McClintic-Marshall Co.

SAN FRANCISCO, 280 tons, 200 tons of rail steel and 80 tons of shapes for vault for United States Mint, to Moore Dry Dock Co.

#### Structural Projects Pending

Inquiries for fabricated steel work include the following:

WORCESTER, MASS., 1500 tons, telephone building.

QUINCY, MASS., 410 tons, stores and offices.

BOSTON, Brighton district, 188 tons, theater.

BOSTON, 127 tons, alterations at 352 Boylston Street.

BOSTON, 119 tons, George White fund health unit No. 4.

FALL RIVER, MASS., 129 tons, bank.

NEW HAVEN, CONN., 300 tons, high school.

NEW YORK, 400 tons, bakery for Dugan Brothers, Inc.

NEWARK, N. J., 6300 tons, approach spans for bridge over Newark Bay for Pennsylvania and Lehigh Valley railroads.

ERIE RAILROAD, 750 tons, 450 tons for bridge at Youngstown, Ohio, and 300 tons for bridge at Rutherford, N. J.

PENNSYLVANIA RAILROAD, 200 tons, bridge at Hinsdale, N. Y.

TOLEDO, OHIO, 4000 tons, bridge over Maumee River for Toledo Terminal Railway Co.

PENNSYLVANIA RAILROAD, 900 tons, four bridges.

COVINGTON, VA., 1500 tons, manufacturing buildings for Industrial Rayon Co.; bids closed Aug. 6.

PITTSBURGH, 1750 tons, 10 barges and three fuel scows for Union Barge Line.

MEMPHIS, TENN., 11,000 tons, 98 barges for Mississippi River Commission; bids to be opened Aug. 17.

ST. PETERS, IND., 1000 tons, highway bridge; Vincennes Bridge Co., low bidder.

MILWAUKEE, 2000 tons, building for Milwaukee Gas, Light & Coke Co.

TEXAS & PACIFIC RAILROAD, 4000 tons, bridges.

CHICAGO, 500 tons, two lift bridges.

CHICAGO, tonnage to be estimated, 45-story office building at 1 North La Salle Street.

CHICAGO, 2500 tons, mill building for United States Gypsum Co.

CHICAGO, 2000 tons, Thompson Building.

CHICAGO, 2000 tons, Ruboff Garage.

CHICAGO, 2500 tons, extension to Wacker Drive.

CHICAGO, 2500 tons, McCormick Estate buildings.

CHICAGO, 450 tons, junior high school; Hansell-Elcock Co., low bidder.

MINNEAPOLIS, tonnage not stated, 24-story office building.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC, 700 tons, two bridges.

OAKLAND, CAL., 1100 tons, office building at Fourteenth and Franklin Streets; bids being taken.

SAN FRANCISCO, 1200 tons, apartment building at Green and Leavenworth Streets; bids being taken.

DENVER, COLO., 103 tons of plates for pipe line for Bell Fourche project for United States Bureau of Reclamation in South Dakota; bids opened.

## Machine Tool Exposition

To Be Held at Cleveland, Sept. 30 to Oct. 4, 1929—  
Order of Preference of Exhibits

The National Machine Tool Builders' Association has announced that its next national machine tool exposition will be held Sept. 30 to Oct. 4, 1929, at the Public Auditorium in Cleveland, where the first exposition took place in 1927. An exposition committee, headed by J. Wallace Carrel, Lodge & Shipley Machine Tool Co., Cincinnati, is already functioning. Other members of this committee are: Henry Buker, Brown & Sharpe Mfg. Co., Providence, R. I.; Ralph E. Flanders, Jones & Lamson Machine Co., Springfield, Vt.; Robert M. Gaylord, Ingersoll Milling Machine Co., Rockford, Ill., and James E. Gleason, Gleason Works, Rochester, N. Y., with P. E. Bliss of Warner & Swasey Co., Cleveland, president of the association, and Ernest F. Du Brul, general manager of the association, as ex-officio participants in the committee's work.

The order of preference by which exhibits will be admitted to the show has been established as follows: 1, Machine tool exhibits by members of the association; 2, machine tool

exhibits by non-members; 3, trade press and manufacturers of accessories used exclusively on machine tools; 4, components and supplies not used exclusively on machine tools, such as anti-friction bearings, driving devices and shop supplies.

Allotments of display space and kindred matters will be handled at the association office, 630 Vine Street, Cincinnati, while details of exposition preparation and management will be taken care of by Roberts Everett, 225 West Thirty-fourth Street, New York.

Class I railroads, on July 15, had 151,886 freight cars in need of repair or 6.7 per cent of the number on line, according to reports just filed with the Car Service Division of the American Railway Association. This was an increase of 6676 over the number reported on July 1, at which time there were 145,210 or 6.5 per cent. Freight cars in need of heavy repairs on July 15, totaled 108,229 or 4.8 per cent, an increase of 964 compared with July 1.

## PERSONAL

PRESLEY HAMILTON has been appointed district sales representative in charge of an office which has recently been established at 149 Broadway, New York, by Gears & Forgings, Inc., Cleveland. He has been located in the New York territory for



PRESLEY HAMILTON

the last 10 years and is well known among the manufacturing establishments which the company serves. Gears & Forgings, Inc., was established early this year by a merger of the Van Dorn & Dutton Co. and the Ohio Forge Co., Cleveland; the Fawcuss Machine Co., Pittsburgh, and the William Ganschow Co., Chicago.

HENRY S. BAKER has been appointed manager of cold rolled strip sales for the Sharon Steel Hoop Co., Sharon, Pa.

DAVID W. DUFFIELD, educational director of the Yawman & Erbe Mfg. Co., Rochester, N. Y., will address the Rochester Sales Managers Club on Aug. 24 at the noonday luncheon in the Chamber of Commerce Building.

GRANT THORN has resigned as sales manager of the American Cyanamid Co. to become associated with the subsidiaries of the International Combustion Engineering Corporation which are identified with coal tar products and allied chemical fields.

W. A. READY has been made president of the Ames Shovel & Tool Co., North Easton, Mass., to succeed ALFRED C. HOWELL. ALBERT H. DAGGETT is treasurer of the company, and L. J. REAY assistant treasurer, while N. T. JACOBS is manager of sales. Otherwise the personnel of the company remains practically as before. Mr. Ready is also president of a company engaged in the manufacture of radio goods, with a plant in Malden,

Mass. Mr. Daggett, heretofore connected with the financing department of Stone & Webster, Inc., Boston, has resigned his position there. Mr. Reay was previously associated with Stone & Webster, Inc., at Seattle, Wash. The Boston offices of the Ames company, for years located in the Ames Building, have been moved to North Easton. The company plans soon to start construction on new manufacturing units at North Easton.

JOSEPH A. ASHWELL, formerly purchasing agent of the American Bosch Magneto Co., Springfield, Mass., has been made purchasing agent of the New Departure Mfg. Co., Bristol, Conn., to succeed William A. Kimball, who recently resigned to engage in manufacturing at Newtown, Conn.

EDWARD P. ALLIS, III, vice-president Louis Allis Co., Milwaukee, manufacturer of electric motors, won the Wisconsin state amateur golf championship at Maple Bluff Country Club, Madison, Wis., on Aug. 3, for the ninth time.

PAUL MACKALL has been appointed vice-president in charge of sales of Bethlehem Steel Co., succeeding E. S. KNISELY, who becomes assistant to Mr. Mackall. H. G. WALTON, who was assistant general sales manager, succeeds Mr. Mackall as general sales manager. These changes were announced by President E. G. GRACE on Aug. 1 and took effect from that date. Other changes announced by the Bethlehem company in the structural and plate sales organization are as follows: V. A. JEVON, who has had charge of structural sales in the Pittsburgh district since 1919, has been appointed manager of structural and plate sales at Chicago, succeeding LEE HILLARD, who has been assigned to other duties. A. G. WILLIAMS, formerly sales agent in the Bethlehem district, succeeds Mr. Jevon as structural sales agent at Pittsburgh. ALFRED B. SCOTT succeeds Mr. Williams as structural sales agent in the Bethlehem district.

H. E. LEWIS, executive vice-president Bethlehem Steel Co., sailed July 28 on the Majestic for a European trip. He will be away five or six weeks.

RUDOLPH B. FLERSHEM, vice-president of the Marine Trust Co., Buffalo, and formerly vice-president of the American Radiator Co., has been elected chairman of the executive committee of the National Radiator Corporation, and GRANT PIERCE, who has been in charge of the New England territory of the American company, has been named president of the National corporation.

JOSEPH BECKER, for some time vice-president and consulting engineer for the Koppers Construction Co., Pittsburgh, has been made vice-president and general manager of the company. After several years in the laboratories of Dr. Koppers at Essen, Germany, Mr. Becker came to the United States, and since 1910 has been associated with all installations of Koppers ovens in the United States and Canada. He is the inventor of the type of oven bearing his name.

E. J. KEARNEY of the Kearney & Trecker Corporation, Milwaukee, who has been on a European tour, will return Aug. 11 on the Aquitania.

W. E. GRIFFITHS, for a number of years research metallurgist for the Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., has become associated with the Duraloy Co., Pittsburgh, as research metallurgist.

DR. ROBERT J. ANDERSON, who was recently made vice-president in charge of production for the Fairmont Mfg. Co., Fairmont, W. Va., sailed on the Aquitania, Aug. 1, for an extended business trip abroad.

MORTON H. SMITH, president Morton B. Smith Co., 241 Front Street, New York, which is said to be the oldest non-ferrous metal scrap concern in the United States, will retire from active business as soon as the company's warehouses are sold. J. W. STRAUB, vice-president, will continue some of the lines in which the company has been engaged, but without a warehouse. Mr. Straub will be located temporarily at 241 Front Street. The business of Morton B. Smith Co. was established in 1847 by William D. Andrews, the inventor of the centrifugal pump. Morton B. Smith, father of Morton H. Smith, became associated with Mr. Andrews in 1859. After various changes in name, the company became known as the Morton B. Smith Co. in 1899.

WILLIAM C. RICE has been elected treasurer of the American Adamite Co., 410 Oliver Building, Pittsburgh, succeeding L. A. AMMON, resigned.

WILLIAM M. HENRY has been elected president of the Oswego Tool Co., Oswego, N. Y., succeeding his father, the late William J. Henry. PAUL A. HENRY, another son, has been made vice-president and treasurer, and C. N. WINFIELD, secretary.

ARTHUR JACKSON, president of the Arthur Jackson Machine Tool Co., Toronto, Canada, will sail from Montreal on Aug. 18 to attend the British Machine Tool Exhibition at Olympia, London, and also to visit a number of European plants.

CLAUDE HARTFORD has been elected vice-president of the American Elevator & Machine Corporation, 113 Cedar Street, New York. He was re-



cently manager of the industrial relations department of the New York Steam Corporation, having been associated with that company in July, 1913, and having served successively as assistant to the chief engineer, superintendent of the district embracing the lower portion of Manhattan, and engineer in the contract department. Mr. Hartford received his engineering education at Stevens Institute of Technology and Cornell University, and was graduated from the latter institution in 1910 with the degree of mechanical engineer. He has been a member of the American Society of Mechanical Engineers since 1912.

H. R. HIRE, who has been elected president of the recently organized Central Illinois Foundrymen's Club, has been president and manager of the Hire Foundry Co., 3000 North Adams Street, Peoria, Ill., since that company was founded April 1, 1926. He received his technical training at



H. R. HIRE

Bradley Polytechnic Institute, Peoria, and in 1910 became associated with the Acme Harvesting Machine Co., of the same city, as timekeeper in the foundry. In 1915 he was given charge of the melting and cost departments, and four years later went with the Maytag Co., Newton, Iowa, as metallurgist, also in charge of costs. He returned to Peoria in August, 1921, and after further study of metallurgy and cost finding, he organized the Crown Foundry Co. in July, 1922. He served as secretary and manager of this company until the founding of the Hire foundry.

A. F. MORRIS, for a number of years vice-president and sales manager of the Morgan Engineering Co., Alliance, Ohio, has been made president of that company. S. F. KALLENBAUGH, who has been with the company for 30 years, most recently as assistant sales manager, has been made sales manager. Mr. Kallenbaugh has been succeeded as assistant sales manager by TOM J. MUIR, who has been sales office manager. Mr. Muir has been identified with the Morgan company for 26 years.

WILLIAM PIEZ, Chicago district manager for the Concrete Steel Co., has tendered his resignation, effective Sept. 15.

H. P. LADDS has been appointed sales manager of the Lake Erie Bolt & Nut Co., Cleveland. For the past

four years he has been vice-president and general manager of the Maryland Bolt & Nut Co., Baltimore, and during the previous four years was general manager of the Rivet Grit Steel Co., Cleveland. At one time he was with the Bourne-Fuller Co. at New York and at Cleveland.

## OBITUARY

JOHN T. BUCKLEY, of Philadelphia, formerly an executive of the Philadelphia Shipbuilding Corporation, died suddenly Aug. 6 while spending a vacation in Atlantic City, N. J.

WALDEMAR DRYSEN, chief mechanical engineer Blaw-Knox Co., Pittsburgh, was killed near his home at Sharpsburg, Pa., Aug. 5, evidently having been run down by an automobile. He was 38 years of age and was the inventor of the Blaw-Knox air preheater. For many years he was attached to the general offices of the United States Steel Corporation, and was an authority on such matters as furnace design and combustion.

WILLIAM A. PARKER, since 1905 purchasing agent for the Bessemer & Lake Erie and the Union railroads, subsidiaries of the United States Steel Corporation, died at Hesston, Pa., Aug. 6. He was born at Frostburg, Md., 65 years ago, and when a young man entered the employ of the Carnegie Steel Co., as a stenographer. Later he went with the Butler & Pittsburgh Railroad, which later was acquired by Andrew Carnegie and extended into what is now the Bessemer & Lake Erie Railroad.

FRANK McDOWELL LEAVITT, engineer and inventor and chief engineer of the E. W. Bliss Co., Brooklyn, died on Aug. 6 at his home in Scarsdale, N. Y. He was born at Athens, Ohio, March 3, 1856, and studied engineering at Stevens Institute of Technology, Hoboken, N. J., from which he was graduated in 1875. Immediately after graduation he became associated with Frederick E. Sickels in New York and aided in the development of the first steam steering gear used by the United States Navy. The following year he became associated with Bliss & Williams, Brooklyn. He left the company in 1881 but returned three years later when the firm had become the E. W. Bliss Co. and had remained with the organization ever since. One of his first important inventions was a tin can making machine which was widely utilized in the development of the canning industry. Later he brought out a toggle draw press for producing hollow pressed ware, which was followed by many other innovations in pressing and stamping machinery. He was also responsible for the Bliss-Leavitt torpedo now used by the United States

Navy. Mr. Leavitt was a member of the American Society of Mechanical Engineers, the American Society of Civil Engineers, the Society of Naval Architects and Marine Engineers, the American Association for the Advancement of Science and the Engineers Club of New York.

SAMUEL FRANK, a member of the Montgomery Iron & Steel Co., Philadelphia, structural steel fabricator, died on July 30. He was born at Diebolsheim-am-Rhine, France, in 1867, and studied ornamental iron work in a number of European cities before coming to the United States in 1889. In 1902 he became associated with the Steward & Stevens Iron Works, Philadelphia, continuing with the company after its merger with the Montgomery company in 1921.

P. V. VERNON, O. B. E., director and chief designer of Alfred Herbert, Ltd., Coventry, England, died on July 22 at his residence, Keresley Manor, North Coventry. He had been with the Alfred Herbert organization for 31 years and director since 1911.

WILLIAM H. NIEDRINGHAUS, superintendent of the National Enameling & Stamping Co., Granite City, Ill., and a member of the Niedringhaus family which founded that institution, died recently at his home in that city. He was born in St. Louis 70 years ago, and attended public schools there. His only occupation had been with the Enameling company, and at the time of his death he had served it consecutively for 50 years.

BENJAMIN THURSTON, general superintendent and a director of the American Screw Co., Providence, R. I., died Aug. 3, at the Massachusetts Homeopathic Hospital, Boston, following an illness of several weeks. He had been associated with the American Screw Co. for more than a half century, having started there as a machinist. He was born in Johnston, R. I., April 3, 1847. After attending the local schools he went to work for the Brown & Sharpe Mfg. Co., Providence. In 1902 he was made general superintendent of the American Screw Co.

HERBERT A. VIETS, president Fuller-Warren Co., Milwaukee, pioneer manufacturer of ranges and stoves, died July 29, aged 75 years.

# Machinery Markets and News of the Works

## Machine Tool Buying Steady

With July Sales Breaking Midsummer Records, Outlook for August Is Highly Satisfactory—Demand for Heavy Tools Is Slowest

**P**ROSPECTS for a continued good rate of machine tool buying during August appear promising in the light of developments in the first week of the month. July sales broke midsummer records for many companies, and while there is no sign of further large orders such as were placed last month by the Wright Aeronautical Corporation and the General Electric Co., the volume of single tool sales remains steady and fairly large for this time of the year.

The Wright Aeronautical Corporation and General Electric Co. are understood to have some additional purchases to make to round out their new equipment.

An indication of the exceptional midsummer machine tool buying is seen in the statement by a Cleveland manufacturer of turret lathes that its July business was probably the largest in the history of the company.

Demand for heavy tools is slow, this being attributed to the small volume of railroad buying, but for small and medium-sized tools, and especially for high-production equipment, there is a steady inquiry. In the Chicago district tractor manufacturers are among the principal buyers. The A. O. Smith Corporation, Milwaukee, is in the market for three planers, five shapers, two turret lathes, three radial drills and a lathe.

Buying of tools in New England is better than it has been in some time. The city of Boston has bought a fairly large list of tools for its new Hyde Park school.

## New York

**N**EW YORK, Aug. 7.—Machine tool buying in the first week of August continued at a steady pace, although it lacked large orders such as were placed in July by the Wright Aeronautical Corporation and the General Electric Co. Most of the current buying is in single tools and is being done by the more progressive companies, which recognize the necessity of replacing old tools with new and of cutting down unit production costs by the installation of the most modern equipment. Nearly all machine tool sellers in this market have a fair amount of business in prospect.

Niles-Bement-Pond Co. has sold 13 double-crank, straight-side presses, a Morris 3-ft. radial drill, an Acme 2-in. bolt cutter, a Cincinnati No. 4 high-speed tapping machine, two Ransom grinders and an Aurora 36-in. drill. Pratt & Whitney division sold four No. 2 jig borers, two 7 x 32-in. lathes, four No. 3 die sinkers, a 4-A plain die sinker, a 4-A universal die sinker, a 4½ x 12-in. thread milling machine, a 6 x 60-in. thread milling machine, a 6 x 90-in. thread milling machine, two 14-in. vertical surface grinders, five lathes and other tools.

E. W. Bliss Co., Fifty-third Street and Second Avenue, Brooklyn, manufacturer of presses and heavy machinery, is planning to devote portion of works to production of airplane engines and parts and is in negotiation for American rights for British engine unit. Company will limit output solely to engines and will not build complete airplanes.

Charles Hvass & Co., 508 East Nineteenth Street, New York, manufacturers of machinery and parts, have purchased adjoining property, and will use for expansion.

Board of Trustees, Woodlawn Cemetery, 20 East Twenty-third Street, New York, has plans for two-story automobile service, garage and mechanical shop, 62 x 145 ft., to cost approximately \$100,000 with equipment.

Officials of Gotham Silk Hosiery Co., 389 Fifth Avenue, New York, are organizing a subsidiary to take over patent rights and manufacture a recently perfected machine for mending hosiery. A plant will be established for manufacture of parts and assembling. S. E. Summerfield is president.

Board of Education, Ticonderoga, N. Y., plans installation of manual training equipment in new two-story high school to cost \$300,000, for which bids are being asked on general contract until Aug. 15.

Tooker & Marsh, 101 Park Avenue, New York, are architects.

Consolidated Automatic Merchandising Corporation, New York, has been organized to take over and consolidate General Vending Corporation, Automatic Merchandising Corporation, 285 Madison Avenue; Remington Service Machines, Inc., Schermack Corporation of America, and Sanitary Postage Service Corporation, 285 Madison Avenue, manufacturers and distributors of automatic and other vending machines. Consolidated company will be affiliated with United Cigar Stores Co. of America, 44 West Eighteenth Street, and will carry out expansion program for increased production and development of additional vending machine units. Headquarters will be established at 285 Madison Avenue. A. J. Sack is chairman of board, and Joseph J. Schermack, president.

T. E. Conklin Brass & Copper Co., 54 Lafayette Street, New York, has leased property at 113-15 Leonard Street, for expansion.

Charles Schaefer, Jr., 332 East 149th Street, New York, architect, has plans for a two-story automobile service, repair and garage building, 100 x 150 ft., to cost close to \$100,000 with equipment.

Otis Elevator Co., Eleventh Avenue and Twenty-sixth Street, New York, has acquired six-story adjoining building for expansion.

William Shary, 41 Union Square, New York, architect, has filed plans for a four-story automobile service, repair and garage building at 407-13 Sixty-first Street, to cost about \$100,000 with equipment.

Lackawanna Railroad Co., 90 West Street, New York, is reported considering plans for steam-operated electric power plant on Hackensack River, near Kearny, N. J., to cost more than \$4,000,000, to be used in connection with proposed electrification of suburban lines.

G. Edison Clark, Inc., Newark, operating an automobile body works at 562 Central Avenue, has leased building at 146 Norfolk Street for expansion.

Board of City Commissioners, Asbury Park, N. J., has work under way on a new power plant for central heating service to cost more than \$250,000 with equipment. Whitney Warren, 16 East Forty-seventh Street, New York, is architect.

F. L. Smidth & Co., 50 Church Street, New York, engineers, and manufacturers of cement mill machinery, have awarded general contract to Charles Flocken, 681 Newark Avenue, Elizabeth, N. J., for one-story foundry addition at Elizabeth, to cost about \$25,000. John S. Branne, Grand Central Terminal, New York, is consulting engineer.

Board of City Commissioners, Newark, has taken out permit for a new hangar at municipal airport, Port Newark, with repair facilities, to cost about \$65,000.

Board of Education, Bogota, N. J., is said to be planning installation of manual training equipment in four-story addition



## The Crane Market

VERY little new inquiry is reported either for electric overhead or locomotive cranes and buyers are slow to award business in some cases as a result of executives being on vacation at present. In the locomotive crane field two cranes for the New York Central Railroad are pending and a sand and gravel company in the New York district is in the market for three new cranes to replace three cranes that are in use. Lehigh University, Bethlehem, Pa., is in the market for a 10-ton, 18-ft. span, 3-motor overhead crane for a new laboratory

building. Carnegie Steel Co. will close in a few days for a 10-ton double trolley, 84-ft. span crane for its new warehouse near the McCutcheon mills, Pittsburgh.

Among recent purchases are:

F. L. Smidth & Co., 50 Church Street, New York, four overhead cranes for the Monolith-Portland Cement Co., Laramie, Wyo.: a 25-ton, 30-ft. span, 1-motor, 2-ton, 29-ft. span, 1-motor, 7-ton, 15-ft. 6-in. span hand power and 5-ton, 35-ft. span, hand power to a boulder in the Middle West.

William F. Kenny Co., New York, con-

tractor, 20-ton electric locomotive crane, reported purchased from Ohio Locomotive Crane Co.

Hart & Early Co., 18 East Forty-first Street, New York, 5-ton truck crane from Browning Crane Co.

American Sheet & Tin Plate Co., for Monessen, Pa., works, one 15-ton, 58-ft. span crane from Cleveland Crane & Engineering Co.

McClellin-Marshall Co., for Leedsdale, Pa., works, two 30-ton, 34-ft. span cranes from Shaw Crane Works.

to high school, to cost about \$170,000, for which plans will be drawn by C. V. R. Bogert, 210 Main Street, Hackensack, N. J., architect.

Sonatron Tube Co., 88 Eighth Avenue, Newark, manufacturer of radio equipment, has awarded a general contract to Drill Construction Co., 889 Broad Street, for a four-story addition, 45 x 120 ft., to cost approximately \$75,000 with equipment. Slegler & Greenberg, 164 Market Street, are architects.

V. J. Eck, Broad Street, Red Bank, N. J., architect, has completed plans for two-story automobile service, repair and garage building, 80 x 100 ft., to cost more than \$100,000, with equipment.

Nizinite Metals Corporation, Perth Amboy, N. J., has been formed to manufacture nickel and chrome plates, zinc sheets and other metals. Plant will soon be in operation at Perth Amboy and materials and equipment have been contracted for.

## Philadelphia

PHILADELPHIA, Aug. 6.—Property at Berks and Hancock Streets, Philadelphia, consisting of factory units on site, 109 x 240 ft., have been acquired by Acme Copper Smelting & Machine Co., 1024 Ridge Street, and will be used for expansion.

Yorke Iron Works, Inc., Philadelphia, has been organized with capital of 100 shares of stock to take over and expand company of same name with local works at 5738 Westminister Avenue. New company is headed by William A. Matsinger, 611 North Fifty-second Street, and James A. Lynd, 6362 Overbrook Avenue.

Atlantic Refining Co., 260 South Broad Street, Philadelphia, has arranged for increase in capital from \$50,000,000 to \$100,000,000, a portion of proceeds to be used for expansion. Company is said to be planning construction of new oil refinery in vicinity of Atreco, Tex., on Neches River, to cost in excess of \$12,000,000 with machinery, and will also carry out pipe line project in this same district through its subsidiary, Atlantic Pipe Line Co., totaling about 500 miles.

William Worlock & Co., Philadelphia, have leased property at 315 North Seventh Street and will establish a new machine shop.

Congoleum-Nairn Co., Inc., 1421 Chestnut Street, Philadelphia, manufacturer of linoleum, cork and other flooring, has awarded general contract to W. W. Lindsay & Co., Harrison Building, for five new units at plant at Marcus Hook, Pa., to cost about \$500,000 with machinery.

Work will include an automobile service, repair and garage building for company cars.

In connection with recent award by Gulf States Paper Corporation, Tuscaloosa, Ala., to United Engineers & Constructors, Inc., Sixteenth and Walnut Streets, Philadelphia, and 125 East Forty-sixth Street, New York, headed by Dwight P. Robinson, for new power plant, contracting company will make all purchases of equipment and carry out complete design and erection. Unit will be equipped with three 1000-hp. boilers and 7500-kw. turbo-generator, with pumping machinery, and complete accessories. Plant will use pulverized coal for fuel.

Following recent purchase of electric range division of Simplex Electric Heating Co., Cambridge, Mass., by Buckwalter Stove Co., Royersford, Pa., purchasing company will continue production at Cambridge works until October, at which time it is proposed to remove equipment to Royersford, where manufacture will be concentrated. Last noted plant will be increased to accommodate the expansion. Simplex company disposed of its appliance division to Edison Electric Appliance Co., Chicago, a subsidiary of General Electric Co., and is discontinuing operations.

Aircraft Development Co., Trenton, N. J., recently formed with capital of \$500,000, has established temporary offices at 220 Garfield Avenue and plans early operation of plant for manufacture of airplanes, including parts and assembling departments. William J. Ross and Floyd Patton, 130 North Warren Street, head new company.

Lehigh Valley Railroad Co., 143 Liberty Street, New York, has begun construction of new engine house at Lehigh, Pa., with repair facilities, to cost about \$75,000 with equipment.

Fletcher Works, Inc., Second Street and Glenwood Avenue, Philadelphia, manufacturer of textile machinery and parts, has purchased plant and business of Scranton Silk Machine Co., Scranton, Pa., manufacturer of similar equipment, and will consolidate with its organization. Production will be discontinued at Scranton and equipment removed to Philadelphia works, which will carry out expansion program.

Ludington Flying Service, Inc., Atlantic Building, Philadelphia, has plans for new hangar with repair facilities at Island Road and Penrose Ferry Boulevard, where aircraft field will be developed.

Following recent purchase of business and patents of Wright Mfg. Co., Lisbon, Ohio, manufacturer of chain hoists, etc., by American Chain Co., Bridgeport, Conn.,

and York, Pa., latter company is planning for removal of machinery to York plant in October, and will carry out expansion at that works. Wright company continues ownership of plant and buildings at Lisbon and is reported planning development of its foundry business after removal of acquired division.

Albert E. Peterson, 307 Trainer Avenue, Ridley Park, Pa., and associates have organized Moldic Co., with capital of \$20,000, and plans early operation of plant at Philadelphia for manufacture of ventilating equipment and devices. Edwin F. Uhland, 2828 D Street, Philadelphia, is also interested in new company.

Girard Smelting & Refining Co., Philadelphia, has purchased property in Philadelphia formerly occupied by Tacony Steel Co. Plant covers 46 acres and includes about 30 brick and steel buildings. Improvements and installation of new equipment will require about one year, after which Girard company's business, now housed in two plants, will be concentrated at new location.

## New England

BOSTON, Aug. 6.—The buying of equipment by the city of Boston for its new Hyde Park district school featured an otherwise quiet machine tool market the past week. As purchases are divided among a number of dealers and manufacturers, a check-up on the actual number of tools bought cannot be made at this time. It is believed, however, a fairly large number of tools have been placed, although not as many as were contained in the original requisitions. Bids close today for millwright equipment for both old and new Hyde Park district high schools.

Small tools are selling much better than a year ago, and are about on a level with sales a month ago.

American Thermos Bottle Co., Norwich, Conn., has started work on an addition.

Bennett Wire Co., Norwalk, Conn., has sold its stock and business to Hudson Wire Co., Ossining, N. Y. Production will be resumed under name of Pequot Wire Co.

Cavanagh-Dobbs, Inc., South Norwalk, Conn., has awarded contract for a three-story plant, 260 x 300 ft.

Central Maine Power Co., Augusta, Me., has started work on a new power plant at Burnham, Me., for which miscellaneous equipment is required.

Goss & DeLeeuw Machine Co., New

Britain, Conn., has let contract to Albertshaw Co., Boston, for one-story manufacturing building, 100 x 175 ft.

Contract has been let by Raybestos Co., Inc., Bridgeport, Conn., manufacturer of brake lining, etc., to W. J. Shaughnessy, Jr., Fairfield Avenue, for one-story addition to plant at Stratford, Conn., 100 x 360 ft., to cost more than \$100,000 with machinery.

Bristol Co., Waterbury, Conn., manufacturer of recording instruments, has plans under way for one-story addition, to cost close to \$45,000 with equipment. F. A. Webster, 51 West Main Street, is architect.

Androscoggin Foundry Co., Auburn, Me., has completed plans for a one-story addition, to cost in excess of \$25,000 with equipment.

E. Ingraham Co., North Main Street, Bristol, Conn., manufacturer of clocks, clock mechanisms, etc., will take bids about Aug. 15 for five-story addition, 50 x 162 ft., to cost more than \$90,000. Max J. Unkelbach, New Britain, Conn., is architect.

Kingsbury Machine Co., Myrtle Street, Keene, N. H., has awarded general contract to G. W. Scott, 28 Washington Street, for two-story addition, to cost more than \$30,000 with equipment.

Fire, July 28, destroyed a building at plant of C. E. Bradley Corporation, Brattleboro, Vt., manufacturer of handles, etc., with loss reported at \$21,000. It is planned to rebuild.

Officials of Dard Hunter's Paper Mill, Chillicothe, Ohio, have organized Dard Hunter, Inc., a subsidiary, with capital of \$50,000, to take over former plant of Barnum & Richardson Co., Lime Rock, Conn., recently purchased by parent organization. New company will remodel with early installation of machinery for new mill. Entire project is reported to cost more than \$80,000. Dard Hunter, Chillicothe, is head.

## Detroit

**D**ETROIT, Aug. 6.—Plans are being considered by Stinson Aircraft Corporation, Northville, Mich., for a one-story addition, to cost about \$25,000 with equipment.

P. R. Periera, Polk Directory Building, Detroit, architect, has completed plans for new two-story service, repair and garage building, to cost approximately \$100,000 with equipment.

Electrical Warehouse, Inc., 452 West Larned Street, Detroit, is having plans drawn for new two-story service, storage and distributing plant, 75 x 190 ft., to cost in excess of \$65,000. Wright & Nice, General Motors Building, are architects.

Air Reduction Sales Co., 342 Madison Avenue, New York, manufacturer of industrial oxygen, automatic welding machines, etc., is reported considering new branch plant near Center Line, Mich., to cost more than \$45,000 with equipment.

Cadillac Malleable Iron Co., Cadillac, Mich., has plans for extensions to increase output about 25 per cent. It recently arranged for increase in capital from \$500,000 to \$650,000, a portion of proceeds to be used for expansion.

Board of Education, Grand Rapids, has plans for an addition to vocational and technical high school, to cost more than \$150,000 with equipment. Turner & Thebaud, Michigan Trust Building, are architects, and W. W. Bradfield, same address, is engineer.

Higgins Brass & Mfg. Co., 12435 Dequindre Street, Detroit, will soon begin work on an addition, to cost upward of \$50,000 including equipment. George V. Pottle, Davis-Whitaker Building, is architect.

Ex-Cel Paper Co., Bangor, Mich., has plans for a new two-story mill, to cost more than \$400,000 with machinery, and will ask bids soon on general contract. Billingham & Cobb, 211 Woodward Avenue, Kalamazoo, are architects and engineers.

Plant of Cummer Mfg. Co., Cadillac, Mich., manufacturer of boxes, crates, etc., has been acquired by new interests, headed by J. P. and George Wilcox, Cadillac. A new company is being formed to establish works for manufacture of springs for automobile seats and kindred products.

Detroit Edison Co., Second Boulevard, Detroit, has authorized plans for a five-story power substation at Grand River and Larchmont Avenues, to cost \$215,000 with equipment. It will build another such station on Jefferson Avenue, to cost \$400,000.

Central Specialty Co., East Forest Avenue, Ypsilanti, is planning a one and two-story addition to foundry, to cost in excess of \$40,000 with equipment.

Acme Equipment Co., Inc., Detroit, dealer in new and used contractors' and power plant equipment, has removed its offices to 216 Hammond Building, Fort and Griswold Streets.

## South Atlantic

**B**ALTIMORE, Aug. 6.—Contract has been let by Crown Cork & Seal Co., 1511 Guilford Avenue, Baltimore, manufacturer of metal bottle caps, bottling machinery, etc., to C. W. Schmidt, Hearst Tower Building, for one-story addition to plant at Highlandtown, to cost more than \$45,000 with equipment. L. R. White, Hearst Tower Building, is architect.

Salisbury Shipbuilding Co., Salisbury, Md., recently organized, has taken over former local shipyard of Smith & Williams, and will remodel and install new equipment for new plant. Ralph H. Grier and Charles T. Fisher, Salisbury, are heads.

International Harvester Co., Inc., 606 South Michigan Avenue, Chicago, has asked bids on general contract for new factory branch, service and repair building for motor truck division at Washington, to cost close to \$100,000 with equipment. E. A. Adt, Barr Building, Washington, is architect; C. B. Raffer, same address, is consulting engineer.

Stieff Co., 17 North Liberty Street, Baltimore, manufacturer of silverware and plated ware products, has awarded general contract to L. L. Chambers, Inc., Roland Avenue and Thirty-sixth Street, for one-story addition to plant, to cost more than \$30,000 with equipment.

Baker County Power Co., Camilla, Ga., purchased municipal electric light plant and waterworks at Norman Park, Ga., and plans extensions and improvements in that section. Company is operated by W. B. Poshay Co., Minneapolis, Minn.

United States Shipping Board, Washington, will receive bids until Aug. 21 for installation of main Diesel engines and auxiliary equipment on eight vessels of Merchant Fleet Corporation, including boilers, pumping units, etc. Capt. R. D. Gatewood is manager of maintenance and repair division.

Dempsey-York Co., Statesville, N. C., recently organized by A. P. Dempsey, 114 South Catherine Street, Baltimore, and D. H. York, Statesville, plans early operation of local plant for manufacture of sheet metal-working machinery and parts. It is understood that property has been acquired.

Board of Bibb County School Commissioners, Macon, Ga., plans construction of manual training shop additions to boys' high school, to be carried out in connection with school expansion program to cost about \$5,000,000.

Broad River Power Co., Columbia, S. C., a subsidiary of General Gas & Electric Co., 50 Pine Street, New York, is planning for increase in steam-operated electric generating plant at Parr Shoals, comprising new 30,000-kw turbo-generator, boilers and auxiliary equipment, to cost more than \$1,000,000. Company will also extend transmission line for connection with system of Lexington Water Power Co., an affiliated organization.

Midville Veneer Co., Midville, Ga., is considering rebuilding portion of mill destroyed by fire June 30, with loss in excess of \$130,000 including equipment.

Board of District Commissioners, District Building, Washington, is said to be planning installation of manual training equipment in new E. A. Paul Junior High School, to cost more than \$450,000 with equipment. A. L. Harris, District Building, is city architect.

Burwell-Harris Motor Co., 229 North Tryon Street, Charlotte, N. C., has awarded general contract to Southeastern Construction Co., 210 West Second Street, for three-story service, repair and garage building, 91 x 100 ft., to cost close to \$100,000. Lockwood, Greene & Co., Inc., Charlotte, are architects and engineers.

Virginia Electric & Power Co., Richmond, Va., plans construction of hydro-electric power house on Roanoke River, near Roanoke Rapids, for an initial output of 25,000 kw., to cost more than \$2,000,000 with power dam and transmission system.

Pierson-Larkin Refrigerating Corporation, Atlanta, Ga., recently organized with capital of \$100,000 by Virgil P. Warren, 1065 Ponce de Leon Avenue, and associates, plans operation of plant for manufacture of a patented aluminum electric refrigerating coil. Lester U. Larkin is also interested in company.

Anniston Scrap Material Co., Inc., North Broad Street, Rome, Ga., plans purchase of a conveyor and hoisting equipment. H. W. Buckner is general manager.

## Pittsburgh

**P**ITTSBURGH, Aug. 6.—Only one local machine tool dealer found July to have been a good month in point of sales. This firm sold several grinding machines to the Pennsylvania Railroad and had orders from the Pittsburgh & Lake Erie Railroad, Montour Railroad and Pressed Steel Car Co., and also shared in the orders placed by the Westinghouse Electric & Mfg. Co.

A vocational department has been authorized by Board of Education, Tyrone, Pa., in three-story and basement high school to cost about \$300,000, for which bids have been asked on general contract. Lawrie & Green, Third and Forster Streets, Harrisburg, Pa., are architects.



Reynolds Metals Co., recently organized with capital of about \$25,000,000, will take over and consolidate Robertshaw Thermostat Co., Youngwood, Pa., manufacturer of plumbing and heating specialties, with a number of other companies, including Fulton Syphon Co., Knoxville, Tenn.; United States Foil Co., Louisville, and Beech-nut Foil Co., Canajoharie, N. Y. New organization will continue production at all plants and contemplates expansion program in line of tin foil, heating, plumbing and affiliated mechanical equipment. Headquarters will be maintained at Louisville; Richard S. Reynolds, head of United States Foil Co., will be president of consolidated organization, and C. K. Reynolds, vice-president.

Pittsburgh Plate Glass Co., Frick Building, Pittsburgh, is arranging for increase in capital from \$50,000,000 to \$65,000,000, a considerable portion of proceeds to be used for expansion. Company will build an addition to branch plant at Clarksburg, W. Va., to cost more than \$300,000 and is also interested in Pittsburgh Safety Glass Co., recently organized, which will soon proceed with plant at Creighton, Pa., for production of shatterproof glass, to cost more than \$1,000,000 with machinery. Parent company will also carry out expansion program at plant at Ford City, Pa., to cost upward of \$4,500,000.

City Council, New Martinsville, W. Va., has authorized bond issue of \$124,000 for construction of municipal electric light and power plant to cost \$83,000, and transmission and distributing system to cost \$41,000.

City Council, Erie, Pa., has authorized acquisition of 100 acres near Buffalo Road for a municipal airport, to include hangars, repair and reconditioning shops, oil storage and distributing buildings, to cost more than \$100,000 with equipment.

Seamless Tube & Steel Co., New York and Pittsburgh, has been organized as consolidation of tube sales departments of Roland Steel Products Corporation, 114 Liberty Street, New York, and Paul F. Hermann Co., Keenan Building, Pittsburgh, and will engage principally in buying and selling tubular and other steel products, largely imported. Roland and Hermann companies will continue to operate separately on all products except tubular goods.

Lewis Foundry & Machine Co., Pittsburgh, is in market for a second-hand 500-lb. electric furnace, complete. M. Matthews is purchasing agent.

## Indiana

INDIANAPOLIS, Aug. 6.—Plans are being completed by Federal Foundry Co., 502 South Harris Street, Indianapolis, for eight one-story additions, comprising brass foundry, 50 x 55 ft.; core room addition, 40 x 80 ft.; pattern shop, 40 x 50 ft.; two flash units, 38 x 100 ft., and other shops, to cost close to \$200,000 with equipment. Carter-Richards Co., Engineers' Building, Cleveland, is architect and engineer.

William M. Torrence, Muncie, has plans for a four-story automobile service, repair and garage building, 60 x 125 ft., to cost close to \$100,000 with equipment.

National Mill Supply Co., Fort Wayne, has awarded general contract to Olds Brothers, First National Bank Building, for an addition to cost about \$45,000 with equipment.

Martin-Parry Corporation, 1100 West

Henry Street, Indianapolis, manufacturer of automobile bodies, is removing equipment from plant of Cleveland Windshield Co., 1520 Fairfield Avenue, Cleveland, recently acquired, to Indianapolis works, where new department will be developed for this branch of manufacture. Company will also establish new chromium plating department for windshield parts.

Board of Education, Richmond, has taken option on 20-acre tract in southwest section of city as site for new high school, with manual training department, entire project to cost in excess of \$400,000 with equipment. Architect will soon be selected to prepare plans. W. Bates is superintendent in charge.

## Cleveland

CLEVELAND, Aug. 6.—Machine tool dealers have had a fair amount of business the past week, bookings having consisted mostly of orders for single tools from widely diversified sources. The volume of inquiry indicates that sales this month probably will be about normal for midsummer. Some postponement of buying is noted on account of the absence of executives whose approval is necessary before orders can be placed. A local turret lathe manufacturer states that the number of sales made in the last 30 days probably is the largest in the history of the company. Production is being well maintained and in some cases deliveries cannot be made in less than four to five weeks.

Contract has been let by United States Aluminum Co., 2210 Harvard Avenue, Cleveland, a subsidiary of Aluminum Co. of America, Pittsburgh, to Industrial Construction Co., 308 Euclid Avenue, for five-story factory branch and distributing plant, 75 x 140 ft., to cost about \$300,000.

Grabler Mfg. Co., 6565 Broadway, Cleveland, manufacturer of clamps, hangers, etc., is having plans drawn for one-story addition, 40 x 80 ft., to cost about \$35,000 with equipment. Christian, Schwarzenberg & Gaede, Euclid Building, are architects.

Snappy Radiator & Battery Service Co., 736 Cleveland Avenue, S. W., Canton, Ohio, has awarded general contract to H. B. Fisher, Canton, for one-story addition, to cost about \$42,000 with equipment.

Scott-Ullman Co., 3311 Perkins Avenue, N. E., Cleveland, manufacturer of electric lighting fixtures and equipment, has leased about 10,000 sq. ft., at 2480 East Twenty-second Street for expansion.

Max Marmorstein, 1353 Chester County Union Mortgage Building, Cleveland, is at head of project to construct and operate a six-story automobile service, repair and garage building, 90 x 125 ft., to cost about \$250,000 with equipment.

Willard Storage Battery Co., 246 East 131st Street, Cleveland, has plans for one-story addition, 65 x 215 ft., to cost more than \$80,000 with equipment. R. C. Norberg is president and general manager.

Aetna Rubber Co., 815 East Seventy-ninth Street, Cleveland, manufacturer of hard and soft molded mechanical and other rubber goods, is completing plans for new plant at Ashtabula, Ohio, to cost close to \$100,000 with machinery. S. T. Campbell is president and general manager.

Cleveland Blow Pipe & Mfg. Co., formerly at 6950 Kinsman Road, Cleveland, has moved into larger quarters at 6505 Cedar Avenue.

Midland Furnace Co., 735 Huntington Bank Building, Columbus, Ohio, has been organized to manufacture warm air furnaces. It has secured property on Hocking Valley tracks in northwest section of city and contracts for factory buildings will be let at once. Furnaces will be made of 3/16-in. plates and No. 12 gage sheets and plant will have capacity of 25,000 units per year. R. C. Walker is president and general manager.

Auto-Diesel Piston Ring Co., 4520 Superior Avenue, Cleveland, has purchased Austin & Smith Co., Cleveland, and will operate as spring and wire forming department. Company now manufactures coil, extension, flat, spiral and torsion springs; metal body and furniture polish; compression rings for compressors, cranes, pumps, machinery, engines, lighting plants, and oil control and compression piston rings for automobiles, trucks and tractors.

## Buffalo

BUFFALO, Aug. 6.—Bids will soon be asked on general contract by National Grinding Wheel Co., 2984 Main Street, Buffalo, J. J. Russ, general manager, for new abrasive and grinding wheel plant at Tonawanda, N. Y., consisting of one and two-story units, 80 x 100 ft. and 40 x 100 ft., respectively, and one-story office, to cost close to \$70,000 with equipment. L. A. Harding Construction Corporation, 1335 Main Street, Buffalo, is architect and engineer.

Champion Paper Co., Carthage, N. Y., has approved plans for one-story addition, 100 x 240 ft., to cost more than \$80,000 with machinery. It is scheduled for completion early in November. J. E. Warner, chief engineer for St. Regis Paper Co., Watertown, N. Y., an affiliated organization, is engineer.

Board of Education, Sidney, N. Y., is considering installation of manual training equipment in new three-story high and grade school to cost \$250,000, for which bids have been asked on general contract. Palmer Rogers, 101 Park Avenue, New York, is architect.

Genesee Motoramp Garage, 93 Pearl Street, Buffalo, C. F. Moe, manager, will soon take bids on general contract for six-story service, repair and garage building, to cost close to \$500,000 with equipment. E. B. Green & Sons, and A. Hart Hopkins, 1 Niagara Square, are architects.

International Paper Co., 100 East Forty-second Street, New York, is abandoning its mills at Glen Park, N. Y., and property has been placed on market, with water power rights retained by present owner. Company is said to be arranging plans for hydroelectric power development at this point, to cost in excess of \$1,000,000 with transmission lines.

Board of Education, Malone, N. Y., plans installation of manual training equipment in new two-story high school to cost in excess of \$500,000, for which bids will soon be asked on revised plans. Fuller & Robinson, 95 State Street, Albany, N. Y., are architects.

City Council, Niagara Falls, N. Y., has been authorized to acquire tract of 230 acres near Tuscarora Road for new municipal airport, to include hangars, repair and conditioning shops, oil storage and distributing building, and other units, with entire cost in excess of \$100,000.

## Chicago

**C**HICAGO, Aug. 6.—July witnessed the close of several large industrial lists and August opens with the promise of a large volume of business, the bulk coming from widely scattered sources as indicated by the character of inquiries. There still is a substantial amount of business coming from tractor plants and it is probable that Allis-Chalmers Mfg. Co., will buy new equipment for its tractor works at Milwaukee, and Springfield, Ill. From the viewpoint of inquiry, dealers look on this as the best opening week in August for many years.

The A. O. Smith Corporation, Milwaukee, is in the market for three planers, five shapers, two turret lathes, a 36-in. lathe and three 4-ft. radial drills. The Chicago, Rock Island & Pacific is asking for prices on two 36-in. shapers, a 36-in. boring mill and a 36-in. lathe. Forging plants in this district are busy and are buying die making machinery. An automobile parts manufacturer in Iowa has purchased a No. 2 milling machine and the Nash Motors Co. is buying a few items for its three plants in Wisconsin.

Chicago State Co., Chicago, Charles J. Vopicka, president, will build a five-story public garage to cost \$300,000. Fox & Fox, 38 South Dearborn Street are architects.

Rodell Stattner, formerly superintendent of mechanical department of the Tipps Tool Co., will open a machine shop at Taylorville, Ill.

Martin Machine Works, 2234 Walnut Street, Chicago, has awarded contract for a new machine shop, 48 x 125 ft.

Furst-McNess Co., Freeport, Ill., plans installation of power equipment in connection with factory addition. The entire project will cost \$140,000.

East Side Levee & Sanitary District, Granite City, Ill., John D. Johns, president, will take bids for two pumping stations with mechanical equipment.

George Brumlich, 171 West Wacker Drive, Chicago, will build a 10-story garage, 80 x 149 ft., to cost \$500,000. B. W. Construction Co., is general contractor.

International Steel & Iron Co., 3136 West Fifty-first Street, Chicago, will build a two-story warehouse to cost \$200,000.

Cedar Rapids Pump & Supply Co., Cedar Rapids, Iowa, manufacturer of plumbing, heating, factory and well supplies, and Central Steel Products Co., Clinton, Iowa, maker of pipe nipples, spacers and fabricator of pipe, have been merged as Central Steel Products Co., with headquarters in Merchants National Bank Building, Cedar Rapids. Plants in Cedar Rapids and Clinton will be continued.

Plans are under way by American Can Co., 104 South Michigan Avenue, Chicago, for two-story top addition to plant at 6025 Western Avenue, to cost in excess of \$80,000. Engineering department at company headquarters, 120 Broadway, New York, is in charge.

Indestro Mfg. Co., 2650 Coyne Avenue, Chicago, manufacturer of universal joints, screw drivers, valve lifters and other tools, has arranged with Central Manufacturing District for new one and two-story plant, 300 x 305 ft., to be occupied under lease. It will cost in excess of \$400,000 with equipment. Present factory will be removed to new location and

increase in output arranged. A. Epstein, 2001 West Pershing Road, is engineer.

International Harvester Co., 606 South Michigan Avenue, Chicago, has awarded general contract to A. G. Wahl, 616 Seventh Avenue, South, St. Cloud, for a two-story factory branch, service, storage and distributing plant at St. Cloud, to cost about \$150,000 with equipment.

Hine Brothers Soap Co., 4023 South Ashland Avenue, Chicago, plans rebuilding portion of plant destroyed by fire Aug. 2, with loss close to \$90,000 with equipment.

Diamond Calk Horseshoe Co., 4632 Grand Avenue, Duluth, Minn., is considering one-story addition, to cost close to \$40,000 with equipment.

Phoell Mfg. Co., 5700 West Roosevelt Road, Chicago, manufacturer of nuts, screws, bolts, etc., will proceed with superstructure for a one-story and basement addition, 100 x 300 ft., to cost more than \$150,000 with equipment. General contract has been let to Calumet Liberty-Way Construction Co., 9401 Stoney Island Avenue. A. S. Alschuler, 53 West Jackson Boulevard, is architect.

Hart-Parr Co., Charles City, Iowa, manufacturer of traction engines and parts, and other equipment, is arranging for sale of 60,000 shares of preferred stock, a considerable portion of fund to be used for plant enlargements and improvements.

West End Scrap Iron & Metal Co., 1910 West Michigan Street, Duluth, Minn., has awarded general contract to R. J. MacLeod & Co., Builders' Exchange, for two-story and basement storage and distributing plant, 42 x 110 ft., to cost about \$30,000. Thomas J. Shefchik, Glencoe Building, is architect.

Board of Education, Onawa, Iowa, is said to be planning installation of manual training facilities in new two-story and basement high school to cost about \$125,000. Beuttler & Arnold, Grain Exchange Building, Sioux City, Iowa, are architects.

Aetna Industries, Inc., 11 East Austin Avenue, Chicago, manufacturer of ornamental iron and metal goods, has purchased a one-story factory, 50 x 100 ft., at 2539-41 West Lake Street, for expansion.

## Milwaukee

**M**ILWAUKEE, Aug. 6.—Expansion of local industries not only is furnishing local machine tool builders with considerable business, but orders from other industrial centers are making a favorable aggregate of new business. Inquiry is also active, encouraging confidence in the belief that good business is in prospect during the remainder of the year.

Industrial employment in Milwaukee at the beginning of August marked a new peace-time high record, the 44 reporting shops having 37,314 persons at work. The average for the first seven months this year is 36,484, compared with a monthly average of 35,171 for the year 1927.

In addition to new shop, 301 x 108 ft., three stories, for which International Harvester Co. has just placed contracts, erection of another unit of Milwaukee farm tractor and cream separator works at 784 Park Street is contemplated at an investment of approximately \$500,000. Work will be undertaken as soon as Milwaukee Common Council vacates 200 ft. of Park Street within limits of works

site, which is expected in about two weeks. Paul F. Schryer is general manager.

Davis & Thompson Co., Fifty-seventh Avenue and Mitchell Street, West Allis, Milwaukee, manufacturer of automatic milling and drilling machinery, lathes, etc., contemplates erection of an addition.

Wisconsin Tool & Mfg. Co., 1219 Thirtieth Street, Milwaukee, has purchased a three-story and basement building at Forty-fourth and State Streets for \$90,000 and will spend about \$50,000 in alterations and additional equipment.

A. J. Lindemann & Hoverson Co., First and Cleveland Avenues, Milwaukee, manufacturer of stoves, ranges, heaters, electrical appliances, etc., has placed general contract with Klug & Smith Co., consulting engineer, 69 East Wisconsin Avenue, local, for construction of a new boiler house unit. Two 400-hp. boilers have been purchased from the Wickes Boiler Co., Saginaw, Mich.

City of Milwaukee has accepted bid of Pacholski & Doligalski, 450 Mitchell Street, for erection of a \$100,000 machine shop and assembly floor for Milwaukee Fire Department. It will be used for constructing and servicing fire apparatus. Roland E. Stoelting is commissioner of public works.

Tobin Tool & Die Works, 200 Ruggles Street, Fond du Lac, Wis., is starting work on a one-story machine shop addition, 50 x 60 ft., to cost about \$25,000 complete.

Kohn Mfg. Co., 1375 Thirtieth Street, Milwaukee, manufacturer of garbage incinerating units, has placed general contract with Byrne Brothers, 3100 Burleigh Street, for a shop addition, 59 x 105 ft., costing about \$30,000 complete.

Milwaukee Mill Supply Co., 1379 Thirty-first Street, Milwaukee, will build a two-story shop and warehouse building, 50 x 120 ft. Architect is Hugo V. Miller, 862 Third Street.

Universal Foundry Co., Oshkosh, Wis., which is building an addition, has increased its authorized capitalization from \$50,000 to \$100,000.

Acme Iron & Steel Co. is new name adopted by former Acme Iron & Wire Works, 1927 St. Paul Avenue, Milwaukee. Company fabricates structural and ornamental iron work.

Kearney & Trecker Corporation, Milwaukee, will erect new three-story office, adjoining present office building, which will release about 5000 sq. ft. additional for manufacturing purposes.

## St. Louis

**S**T. LOUIS, Aug. 6.—A new power plant has been authorized by Anheuser-Busch, Inc., Pestalozzi Street, St. Louis, consisting of two 5000-kw. turbo-generators, three 1100-hp. boilers, superheaters, pumping equipment and auxiliary machinery; pulverized coal will be used as fuel and facilities for storage and handling installed. Improvements will be made in present power house. Entire project will cost close to \$1,000,000. Ophuls & Hill, Inc., 112 West Forty-second Street, New York, is engineer.

P. T. Drotts, Reliance Building, Kansas City, Kan., architect, has completed plans for a four-story automobile service, repair and garage building to cost close to \$175,000 with equipment.

American Foundry Co., Maud, Okla., is considering plans for one-story foundry and machine shop to cost more than \$35,000 with equipment.



Sinclair Pipe Line Co., Sinclair Building, Tulsa, Okla., a subsidiary of Sinclair Consolidated Oil Co., 45 Nassau Street, New York, is reported planning construction of pipe line from vicinity of Cushing, Okla., to a point near Chicago, to cost more than \$10,000,000.

Automatic machinery, conveying and other equipment will be installed in one and two-story addition, 50 x 133 ft., and 40 x 100 ft., to be built by Coca-Cola Bottling Co., 2540 Penn Street, Kansas City, Mo., to cost close to \$100,000. Hans Von Unwerth, Finance Building, is consulting engineer.

State Board of Public Affairs, Oklahoma City, Okla., has approved immediate construction of new power plant at State School for Blind, Muskogee, Okla., to cost about \$40,000. Layton, Hicks & Forsythe, Braniff Building, Oklahoma City, are architects.

Gasconade River Power Co., Pioneer Trust Building, Kansas City, Mo., has secured permission to proceed with hydroelectric power project near Rich Fountain, Mo., including power dam and generating station with capacity of 25,000 hp. Entire project will cost in excess of \$1,000,000 with transmission lines.

Board of Managers, Missouri School for Deaf, Fulton, Mo., has awarded general contract to W. R. Odor & Son, Canton, Mo., for two-story manual training building, 51 x 101 ft., to cost close to \$45,000 with equipment. C. A. Smith, Finance Building, Kansas City, Mo., is architect.

City Council, Bismark, Mo., will take bids soon for pumping machinery, elevated steel tank and tower, and auxiliary equipment for municipal waterworks. A bond issue of \$47,000 is being arranged. Russell & Axon, Railway Exchange Building, St. Louis, are consulting engineers.

Oklahoma Gas & Electric Co., Oklahoma City, Okla., has work under way on addition to steam-operated electric power plant at Harrah, Okla., known as Horseshoe Lake Station, to develop output of 65,000 hp. It is purposed to complete work in November or December. Plans are under way for construction of two additional transmission lines. Company is a subsidiary of Standard Gas & Electric Co., 231 South La Salle Street, Chicago.

Oklahoma Railway Co., Terminal Building, Oklahoma City, Okla., will proceed with erection of three one-story shops, 100 x 170 ft., and two units, each 50 x 120 ft., with one-story automobile service, repair and garage building, 80 x 200 ft. Entire project will cost in excess of \$100,000 including equipment. Guy B. Treat is consulting engineer.

L. B. Foster Co., Pittsburgh, has opened office at 1725 Railway Exchange Building, St. Louis, and will render service for users of industrial trackage.

## Gulf States

**B**IRMINGHAM, Aug. 6.—A company has been organized by W. D. Hayden, Houston, Tex., and associates to construct and operate a lime plant on local site, using oyster shells as raw material. Arnold & Welgel, Woodville, Ohio, engineers, have been engaged to prepare plans for initial unit. It will be of rotary kiln type, with complete crushing plant and auxiliary equipment, to cost more than \$300,000 with machinery.

Southern Cotton Oil Co., Decatur, Ala., has acquired adjoining property and is reported planning an addition for commercial fertilizer production, to cost in excess of \$45,000 with equipment. Company will also carry out expansion pro-

gram at present mill to cost approximately \$25,000. Headquarters are in Produce Exchange Annex, New York.

Armour & Co., Union Stock Yards, Chicago, plan installation of conveying equipment, refrigerating and cold storage machinery in new packing plant at Monroe, La., to cost \$125,000.

J. J. & M. Taxman Refining Co., Wichita Falls, Tex., recently organized by J. J. Taxman, and associates, has purchased local oil refinery of Miller Refining Co., and will take immediate possession. New owner will carry out expansion and betterment program to develop daily output of close to 2500 bbl.

Slaton Cotton Oil Co., Slaton, Tex., is planning a new unit, to cost approximately \$40,000 with equipment.

City Council, Marlin, Tex., is asking bids until Aug. 14 for two electrically-operated centrifugal pumps, each with capacity of 450 gal. per min., with complete automatic auxiliary equipment. Plans and specifications at office of Levi Goodrich, city engineer.

Turner & McPherson, Martin Building, Birmingham, architects, have completed plans for one-story automobile service, repair and garage building, 100 x 190 ft., to cost close to \$90,000 with equipment.

Texas Pipe Line Co., operated by Texas Corporation, Houston, Tex., is said to be completing plans for construction of pipe line from its Alma Gray oil properties, Gray County, to Electra, Tex., about 154 miles, using 8-in. diameter welded steel pipe. A new pumping plant will be constructed in vicinity of last-noted place, entire project to cost more than \$5,000,000.

Board of Education, Tallahassee, Fla., is reported planning installation of manual training equipment in new high school to cost about \$250,000, for which plans will be drawn by Edwards & Sayward, Marietta Building, Atlanta, Ga., architects.

Hartline Mfg. Co., Tampa, Fla., recently organized by E. M. Lively, Tampa, Fla., and associates, has taken over former plant of Hartline Blotter Pen Co., and will manufacture a special self-blotting fountain pen and kindred products. An expansion and improvement program will be carried out, including erection of one-story factory.

City Council, Waco, Tex., plans establishment of municipal airport, including hangars, repair and reconditioning shops, and other units, to cost about \$75,000. A bond issue has been authorized.

Board of City Commissioners, S. E. Moss, water commissioner, City Hall, Dallas, Tex., has deferred receiving bids for waterworks machinery, including power and pumping equipment, etc., to cost approximately \$4,000,000, from Aug. 8 until Sept. 1. Fuller & McClintock, 170 Broadway, New York, are consulting engineers. J. B. Winder is chief engineer of Dallas water department.

Mississippi Power Co., Gulfport, Miss., affiliated with Alabama Power Co., Birmingham, has secured permission for a hydroelectric power development on Mississippi River, vicinity of Muscle Shoals. Plant will be designed for initial capacity of about 100,000 hp. and ultimate output of 260,000 hp., and is reported to cost more than \$4,000,000 with transmission lines.

Elliot Core Drilling Co., 3210 Harrisburg Street, Houston, Tex., manufacturer of oil well equipment, has acquired property on Canal Street and is considering construction of new one-story plant, to cost more than \$25,000 with equipment.

## Cincinnati

**C**INCINNATI, Aug. 6.—Plans are being considered by E. E. Peters Machine Co., Springfield, Ohio, for new one-story plant for manufacture of patented automobile starter, including parts and assembling departments.

Radio Broadcasting Station WAIU, Elks' Country Club grounds, Columbus, Ohio, plans early rebuilding portion of power house and station destroyed by fire Aug. 2, with loss reported close to \$100,000, including equipment. M. V. Ackenberg is engineer.

Stanton Motors, Inc., 841 North High Street, Columbus, will take bids at once for two-story and basement service, repair and garage building, to cost \$100,000 with equipment. Richards, McCarty & Bulford, 584 East Broad Street, are architects.

Fairfield Paper Box Co., Baltimore, Ohio, has awarded general contract to Wilbur Weaver, Lancaster, Ohio, for one-story addition to corrugated paper box plant, to cost close to \$80,000 with equipment.

Henry Vogt Machine Co., Tenth Street, Louisville, manufacturer of ice-making and refrigerating machinery, has asked bids on general contract for multi-story addition to cost about \$340,000, a portion of structure to be used for storage and distribution. D. X. Murphy & Brothers, Louisville Trust Building, are architects.

Ovens, conveying machinery and other equipment will be installed in new plant to be built by Kentucky Macaroni Co., Inc., 121 North Fifth Street, Louisville, to cost about \$50,000. Clifford Reichert, Louisville, is architect.

Leschner Paper Co., State Street and Harrison Avenue, Cincinnati, has awarded general contract to Ferro Concrete Construction Co., Elm Street, for two-story and basement addition, to cost approximately \$75,000 including equipment.

Air Corps, Material Division, Wright Field, Dayton, Ohio, will receive bids until Aug. 15 for one straight and one irregular cutting shear, circular 66; 42,200 ft. ignition cable, and 46,000 ft. shielded power and lighting cable, circular 69; until Aug. 13 for 1796 belt assemblies, circular 64; until Aug. 17 for 200 control assemblies, 720 cock assemblies, 50 air intake manifolds, 320 engine exhaust stacks, 1200 fuel tank outlet screens, 1742 exhaust header flanges, etc., circular 70; 97 lever and bracket assemblies, 825 trigger motor assemblies, 332 sight assemblies, 365 post assemblies and 807 plunger end assemblies, circular 663.

Omher Fare Register Co., Dayton, Ohio, plans rebuilding portion of storage and distributing division destroyed by fire July 31, with loss close to \$40,000 with equipment.

American Rolling Mill Co., Middletown, Ohio, has awarded general contract to H. W. Cox, Ashland, Ky., for one-story storage and distributing unit, 160 x 270 ft., at its Ashland works, to cost \$175,000 with handling and other equipment.

## Pacific Coast

**S**AN FRANCISCO, Aug. 1.—Plans are being completed by California Electric Refrigeration Corporation, Napoleon and Jerrold Streets, San Francisco, manufacturer of refrigerating equipment, for one-story plant at Berkeley, to cost about \$40,000.

Master Metalath Mfg. Co., Los Angeles, has awarded general contract to E. H. Goff, 1219 West Ninety-fifth Street, for a new one-story plant, 108 x 120 ft.

Union Oil Co., Mills Building, San Francisco, has plans for a new storage and distributing plant at Oakland, Cal., to cost close to \$100,000 with equipment.

Thomas A. Box, 63 Sunshine Street, Sausalito, Cal., and associates have organized Home Safety Match Co., to construct and operate a plant in Peninsula district, San Mateo County. Initial unit will cost more than \$500,000 with machinery. A machine shop will be installed. William E. Williams, Sausalito, is also interested in new company.

Roper Motor Co., Phoenix, Ariz., R. D. Roper, president, has acquired property at West Adams Street and Sixth Avenue, 135 x 200 ft., and plans construction of service, repair and garage building, to cost close to \$100,000 with equipment.

Hardie Mfg. Co., 55 North Front Street, Portland, manufacturer of spraying machinery and devices, has awarded general contract to A. C. Teller & Son, Worcester Building, for new one-story plant, to cost approximately \$40,000 with equipment. Headquarters are at Hudson, Mich.

Ogden Motor Car Co., Ogden, Utah, has leased a new building, 95 x 130 ft., to be erected at Washington Avenue and Binford Street, for new service, repair and garage building, to cost about \$85,000 with equipment. George C. Whitmeyer & Sons, First National Bank Building, are contractors.

Western Wax Paper Co., North Portland, has awarded general contract to Frank J. Leonard, Lewis Building, for a new one-story mill, 112 x 240 ft., to cost close to \$100,000 with machinery.

Zellerbach Paper Co., 1213 Front Street, Sacramento, Cal., is arranging for early rebuilding of portion of plant recently destroyed by fire, to be three stories, totaling 35,000 sq. ft. floor space, to cost \$180,000 with equipment.

Tucson Gas, Electric Light & Power Co., Tucson, Ariz., has approved plans for a new one-story equipment storage and distributing plant, with repair facilities, 60 x 165 ft., to cost close to \$40,000 with equipment.

Southern California Edison Co., Los Angeles, is arranging a fund of \$130,000,000 for extensions and improvements in hydroelectric power and steam power plants, transmission and distributing lines, power substations and other facilities over a period of five years, or on basis of about \$26,000,000 per year. Close to \$90,000,000 will be used for steel tower transmission lines and distributing systems.

Hesler Machine & Iron Works, Portland, Ore., was damaged by fire July 27, with loss estimated at from \$80,000 to \$100,000. The same fire also damaged Peerless Pattern Works adjoining and destroyed patterns accumulated over 30 years.

## Foreign

CONTRACT has been let by Compania Colon Transaerea Espanola, S. A., Seville, Spain, to Fox Brothers International Corporation, 33 Rector Street, New York, for construction of airport at Buenos Aires, Argentina, including hangars, repair and reconditioning shops, parts shops, oil storage and distributing buildings and other units, project to cost about \$5,000,000 with equipment. Company will operate a giant dirigible line

between Seville and Buenos Aires, and recently awarded similar contract to Fox organization for airport at first noted place.

Department of Public Works, Supplies and Tenders, Auckland, New Zealand, will receive bids until Sept. 11 for two electric traveling cranes, each of 10 cwt. rating, for indoor service, as per specifications on file.

Moscow Water Supply Service, city of Moscow, Russia, plans extensions in municipal waterworks to increase capacity about 30,000,000 gal. per day, including pumping machinery, power equipment and auxiliary machinery. Delegation has come to United States to make study of modern systems of required type and will make headquarters at office of Amtorg Trading Corporation, 165 Broadway, New York. J. Andronov, president of Borough of Khamovniki, city of Moscow, heads delegation.

Mond Nickel Co., Ltd., Clydach, South Wales, British Isles, is planning early construction of a sixth refining unit at local plant, to cost more than \$400,000 with equipment.

Soviet Russian Government, Moscow, will increase capacity of shipyard at Sormov, for production of river boats and barges. A department will be installed for manufacture of Diesel engine units, including parts and assembling. An appropriation of \$9,600,000 is said to have been authorized for expansion. American-Russian Chamber of Commerce, 145 West Fifty-seventh Street, New York, has information on project.

## Canada

TORONTO, Aug. 6.—For the first seven months of this year total machine tool business exceeded that of a year ago, and according to builders and dealers this has been one of the best years since the war. Makers of machinery report plant operations about 20 per cent better than last year and many have large unfilled orders on hand.

The Canadian National and Canadian Pacific Railways have been large buyers of equipment for shops, and additional purchases are in prospect. More interest is reported for mining equipment, several companies in northern Ontario having recently announced plans for new mill construction and development work. The automotive industry is not strongly represented among purchasing interests, but the General Motors Corporation is expected to be in the market soon for equipment for plants at Oshawa and Walkerville, Ont., and Regina, Sask.

High School Board, Welland, Ont., A. B. McLean, chairman, is receiving prices, catalogs, etc., on lathes and general equipment for vocational training shop for a proposed school to cost \$200,000.

Bids will be received by city clerk, City Hall, Quebec, until Aug. 20 for a pumping unit to be installed in waterworks plant. J. A. Tremblay is engineer.

Plans are being prepared for a dam and power house to be built at Dixville, Que., on the Coaticook River, for Desrochers & Normandin, Coaticook, Que. Engineer is A. C. Crepeau, 30a Wellington Street North, Sherbrooke, Que.

Bids are being received, no closing date set, by J. G. W. Campbell, Truro, N. S., for an addition to power plant of Truro Electric Commission.

Lang & Ross, Sault Ste. Marie, Ont., have commenced work on a power line

to Montreal River in connection with \$1,000,000 power development project near Sault Ste. Marie for Great Lakes Power Co., Ltd. Plans for power house are not yet ready.

Empire Stove & Furnace Co., Owen Sound, Ont., has started work on an addition to its foundry.

Standard Paper Box Co. is building a \$75,000 addition to its plant at Montreal. A. Leduc, 1488 Gifford Avenue, is general contractor; Baulne & Leonard are engineers.

## New Trade Publications

**Wire-Rope Slings.**—John A. Roebeling's Sons Co., Trenton, N. J. Illustrated descriptive pamphlet of 85 pages covering slings made of wire rope for handling heavy materials, including locomotives, large beams and girders, boilers, heavy guns, roll housings and other materials. Various types of grab hooks and other auxiliary equipment are shown, including lifting beams.

**Sprockets and Chains.**—Boston Gear Works Sales Co., Norfolk Downs, Mass. Various types of steel and other chains and sprockets which have been standardized for delivery from stock are described and illustrated. Horsepower and load tables and list prices are included.

**Oxy-Acetylene Equipment.**—Oxweld Acetylene Co., 30 East Forty-second Street, New York. Catalog, 56 pages. New equipment includes a cutting blowpipe which is said to be immune from "back-fire," and a new line of portable low-pressure acetylene generators using compressed cakes of calcium carbide.

**Electronic Tornado.**—Lincoln Electric Co., Cleveland. Eight-page folder describing principles underlying automatic carbon arc welding by the electronic tornado process, properties of the joint so made, and machines developed for its use. The process was described in THE IRON AGE June 28, page 1810.

**Materials - Handling Equipment.**—Lewis-Shepard Co., Watertown, Mass. Catalog of 36 pages devoted to engineering features of elevating trucks, stackers, platforms and skid racks and hand trucks and barrows. The catalog is thoroughly illustrated and contains clearance and dimension data for various sizes of the different units.

**Centrifugal Pumps.**—Pennsylvania Pump & Compressor Co., Easton, Pa. Bulletin 212 of 16 pages, illustrated, describes a line of multi-stage centrifugal pumps, showing their application to various uses and methods of connecting up to electric motors, steam turbines, gas engines, belts, etc.

**Shot and Grit Blasting.**—American Steel Abrasives Co., Gallon, Ohio. Booklet presenting "15 facts for the foundry and forge shop" on shot and grit blasting in foundry work.

**Oxwelded Industrial Piping.**—Linde Air Products Co., 30 East Forty-second Street, New York. Illustrated pamphlet upholding the proposition that it is better to construct pipe lines of stock lengths and welded joints than to rely upon threaded joints, malleable fittings and specials.

**Ohmmeters.**—Roller-Smith Co., 233 Broadway, New York. Bulletin 300 of eight pages, illustrated, describing several types of ohmmeters, some of which are portable, and lists the prices for various instruments and attachments.